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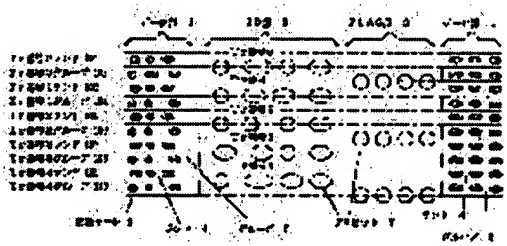
(71)Applicant : HITACHI LTD
HITACHI VIDEO IND INF SYST INC

(72)Inventor : ISHIMARU MAKOTO
SAIGO YOICHI
MIYAMOTO JIICHI
SUGIYAMA HISATAKA
FUKUDA YASUSHI

(54) INFORMATION RECORDING MEDIUM AND ITS RECORDING/ REPRODUCING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent user data from being destroyed when a head is positioned erroneously, by beforehand providing a FLAG part and a periodical pattern for discriminating two adjacent tracks and sharing address information on a medium.



SOLUTION: Since a pulse signal exists in the FLAG part 3 of a Tr number 0 groove regenerative signal 112 against that the pulse signal doesn't exits in the FLAG part 3 of a Tr number 0 land regenerative signal 111, both signals can be discriminated. Since the pulse signal doesn't exist in the FLAG part 3 of the Tr number 0 groove regenerative signal 114 against that the pulse signal exists in the FLAG part 3 of the Tr number 0 land regenerative signal 113, both signals can be discriminated. In such a manner, by providing the prepit of the FLAG part on a boundary of a side that a prepit of an ID isn't provided every four tracks summing up land/groove, adjacent

land and groove having a common ID can be discriminated.

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CLAIMS

[Claim(s)]
[Claim 1] It is the record medium characterized by to prepare the information mark for track identities every four trucks in the boundary section of the near truck with which said mark of a location different from said mark of a truck being recorded is not recorded in the information record medium which forms two or more trucks on a substrate, and arranges the mark which contained address information in one side of the boundary section of a truck, and prepares said mark every two trucks.
[Claim 2] The record or the regenerative apparatus of the record medium of claim 1 characterized by establishing a means to reproduce the above-mentioned address information, a means to reproduce the information mark for the above-mentioned track identities, and to detect the existence, and a means to discriminate a truck from said address information from the detection result of the information mark for track identities.
[Claim 3] Form two or more trucks on a substrate, and a mark is arranged by the fixed record approach including address information on one side or the both sides of the boundary section of a truck. And arrange said mark so that it may not exist in the both sides of the same location of a truck, and said mark is set to the information record medium formed every two trucks. It is the record medium characterized by arranging the information mark for track identities in the center of a truck by the record approach different from said mark, and preparing the information mark for said track identities in a location different from the mark containing said address information of a truck being recorded every other truck.
[Claim 4] The record or the regenerative apparatus of the record medium of claim 3 characterized by establishing a means to detect the existence of the information mark for [above-mentioned] a track identity.
[Claim 5] The recording device of the mark for the track identities of the record medium of claim 3 characterized by establishing a means to detect the existence of the information mark for the track identities of claim 3, and a means to record the mark for these track identities.
[Claim 6] The record or the regenerative apparatus of the information mark for the track identities of the record medium of claim 3 which records the information mark for the track identities of claim 3, and is characterized by judging the sector corresponding to this after this to be a bad sector when the information mark for these track identities is reproduced, that existence is detected and existence of the information mark for [this] track identities is not able to detect as expected.
[Claim 7] Record data on the data area established in the same sector apart from the information mark for track identities, or the mark containing address information, and this is reproduced after this at the same time it records the mark for the track identities of claim 3. The record regenerative apparatus of the record medium of claim 3 characterized by judging the sector corresponding to this to be a bad sector when existence of the information mark for [this] track identities could not detect as expected, or it is not able to reproduce as said recorded data were expected.
[Claim 8] Form two or more trucks on a substrate, and the mark which contained address information in one side or the both sides of the boundary section of a truck is arranged. And arrange said mark so that it may not exist in the both sides of the same location of a truck, and said mark is set to the information

record medium formed every two trucks. In a location different from the mark containing said address information of a truck being recorded The mark train which becomes one side from two or more marks among boundaries with two trucks which adjoin a truck and this is arranged. The record medium characterized by preparing the information mark for track identities which arranges the mark train which continues at this and becomes the near boundary of another side from two or more marks, and arranges said mark train every four trucks.

[Claim 9] The record or the regenerative apparatus of the record medium of claim 8 characterized by establishing a means to count the number of the information marks for [above-mentioned] a track identity, and a discernment means to discriminate a truck from this counted value.

[Claim 10] Form two or more trucks on a substrate, and the mark which contained address information in one side or the both sides of the boundary section of a truck is arranged. And arrange said mark so that it may not exist in the both sides of the same location of a truck, and said mark is set to the information record medium formed every two trucks. In a location different from the mark containing said address information of a truck being recorded The first mark train which becomes one side from two or more marks among boundaries with two trucks which adjoin a truck and this is arranged. The second mark train which continues at this and becomes the near boundary of another side from two or more marks is arranged. The record medium characterized by preparing the information mark for track identities which arranges a field without the mark of predetermined die length between the first mark train and the second mark train, and arranges said mark train every four trucks.

[Claim 11] The record or the regenerative apparatus of the record medium of claim 8 characterized by to establish a discernment means discriminate a truck from a means to reproduce the first mark train among the information marks for [above-mentioned] a track identity, and to detect the existence, a means reproduce the second mark train and detect the existence, the detection result of said first mark train, and the detection result of said second mark train.

[Claim 12] The record or the regenerative apparatus characterized by not performing the playback data transfer to record, elimination, or high order equipment of you ZADE-TA with the sector concerned in record or the regenerative apparatus of claim 2, claim 4, claim 9, and claim 11 when the discernment result by the information mark for the above-mentioned track identities differs from the indicated value of a truck.

[Claim 13] The first mark train arranged at one side including synchronization information and address information among boundaries with the odd-numbered (the eventh) two trucks which form two or more trucks on a substrate, and adjoin the even-numbered (the oddth) truck and this, In the record or the regenerative apparatus of a record medium which it has [regenerative apparatus] the second mark train arranged including the address information same on the near boundary of another side as synchronization information and the first mark train following on this, and has said mark train arranged every two trucks A means to set up the indicated value of a track number independently in the first mark train and the second mark train, It has an address detection means to take the playback information on this indicated value, the first mark train, and the second mark train to each, and to detect coincidence. By even-numbered (the oddth) truck, to the first mark train and the second mark train, although, the indicated value of the same track number as both is set up. The record characterized by setting up so that it may become the number of sectors which carries out the difference of the indicated value over the first mark train, and the indicated value over the second mark train by one truck or one truck by odd-numbered (the eventh) truck, or a regenerative apparatus.

[Claim 14] With record or the regenerative apparatus of claim 2, claim 4, claim 9, and claim 11 And when the record medium with which address information has 1 time or the address part by which multiple-times record was carried out is recorded or reproduced, it sets. At least one of 1 time or the address information by which multiple-times record was carried out is detectable. And the record or the regenerative apparatus characterized by performing the playback data transfer to record, elimination, or high order equipment of you ZADE-TA of the sector concerned on condition that the discernment result by the information mark for track identities was in agreement with the indicated value of the truck.

[Claim 15] The record medium which has recorded beforehand the difference between normal rotation

of an alignment pattern and reversal as information.
[Claim 16] Record or a regenerative apparatus using the difference between normal rotation of the recording device which records the difference between normal rotation of an alignment pattern and reversal as information, or an alignment pattern, and reversal as information.
[Claim 17] Record or a regenerative apparatus using the difference between normal rotation of the recording device which records the difference between normal rotation of an alignment pattern and reversal as identification information of a truck, or an alignment pattern, and reversal as identification information of a truck, or the record medium which has recorded beforehand the difference between normal rotation of an alignment pattern and reversal as identification information of a truck.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the record regenerative apparatus of the optical disk (a phase change mold and postscript mold) which can perform land record and groove record, a magneto-optic disk, and an optical disk.
[0002] Moreover, this invention relates to the optical disk and optical disk record regenerative apparatus which narrowed a land / not only groove record but the track pitch, and attained densification.
[0003] Moreover, this invention relates to the record medium which records relatively an optical disk or not only an optical disk record regenerative apparatus but address part by the big mark, and records data division by the small mark relatively, and arranges address part on the boundary of a truck, and is shared by two trucks, or its record regenerative apparatus.
[0004]
[Description of the Prior Art] It has the heights (a land is called henceforth) inserted into the guide rail (a groove is called henceforth) and guide rail of an optical disk, and JP,6-176404,A is shown as a conventional example of the medium which records information on the both. In this example, PURIPITTO is arranged on the virtual production of the boundary section of a groove and a land. Thereby, while recording recording information on both a land and a groove, said PURIPITTO is made to bear the address information (ID number) which shows a record section, and the address information to the land and groove of a pair is shared by one PURIPITTO. When this method is applied to for example, a phase change mold record medium or an optical MAG mold record medium, since it stops mixing (a cross talk is lost), in a land, narrow-track-izing is possible for the information on the land which adjoins according to the cross protection within an optical spot, or a groove. On the other hand, in order that this cross protection may not exist in the PURIPITTO section, the address information to the land and groove of a pair is shared, an activation-track pitch is enlarged, and the cross talk is reduced.
[0005] Moreover, there is an example which writes a FLAG mark in a recorded sector as an example which forms the FLAG mark other than address information or data on a medium as shown in JP,59-28248,A.
[0006] It enables it to write in the cord of arbitration as an example using an alignment pattern as information, as a synchronizing signal arranged in front of data, as shown, for example in JP,63-112873,A, and suppose that it is refreshable by specifying this cord at the time of read-out. Thus, the information as a password cord is given to the alignment pattern.
[0007]
[Problem(s) to be Solved by the Invention] In JP,6-176404,A, since the address information to the land and groove of a pair is shared by one PURIPITTO, even when address information is able to be correctly read at the time of playback, distinction of the sector of a land and the sector of the groove section corresponding to this address information cannot be performed. For example, an impact joins a drive into WR, a gap generates a truck, and this is undetectable even if a laser spot moves to a groove from the land which shares ID of the same PURIPITTO. Moreover, when directions of a land and a

groove are conversely set up by the design mistake of failure of equipment or the software of a microprocessor (MPU) etc., these errors cannot be detected from the address information on a medium. For example, when it positions in a groove accidentally at the time of playback of a land, the groove which shares the same address part as this land will be reproduced, and different data from what high order equipment required will be transmitted. Data will be recorded on the groove which shares the same ID as this land when it positions in a groove accidentally similarly at the time of record of a land, when data are already in this groove, it will become double writing, and the data recorded before will be destroyed. In order to prevent such a thing, when the location of a laser spot is mistaken, it can be necessary to specify a sector from ID information on a medium, the information on data division, etc.
[0008] Moreover, although address information is identification marking prepared independently, the write-in FLAG mark of JP,59-28248,A is for writing in with a non-written in sector and distinguishing a settled sector, and that of the discernment approach of discernment of a land/groove or two or more adjoining trucks is unrelated.
[0009] moreover -- JP,63-112873,A -- an alignment pattern -- the function as an alignment pattern -- in addition, although the information on a password cord is given, it does not consider enabling a setup of the password cord of arbitration, raising the autocorrelation of an alignment pattern, and preventing incorrect detection, setting an alignment pattern as the pattern which does not exist in data, and preventing incorrect detection in data, etc. Moreover, as the usage of the information added to an alignment pattern, only the usage as a password cord is described and how to use for discernment of a land and a groove or the adjoining discernment of two or more trucks is not described.
[0010] The purpose of this invention is about the land which is sharing this same address information, and a groove in the method which is the optical disk which records information on both a land and a groove, and forms PURIPITTO on the boundary production of a land and a groove, shares the address information to a land and a groove, and attains densification to offer an identifiable optical disk medium, its record, or a regenerative apparatus.
[0011] Moreover, the ID section which the purpose of this invention formed two or more trucks a land / not only groove record but on the substrate, and recorded address information by the big mark relatively, In the recording method which has the data division which have you ZADE-TA relatively recorded by the small mark, and realizes densification It is in offering the record medium which makes identifiable to stability two or more trucks which share address part, and its record or regenerative apparatus in the record medium with which the mark of said address part is recorded over two or more trucks.
[0012] Moreover, even if the purpose of this invention has dust on a medium defect or a medium, it is identifiable to stability in said land and groove, said two or more trucks, or address information, and is to offer the record medium which protects you ZADE-TA by this, and its record or regenerative apparatus.
[0013]
[Means for Solving the Problem] The following means were used in order to attain the above-mentioned purpose.
[0014] (1) PURIPITTO common to the boundary of the adjoining land and a groove was prepared every lands / groove 2 in all trucks, and PURIPITTO a land / for groove discernment was prepared in the boundary of a near groove and a near land in which PURIPITTO of the ID section is not prepared in the method which shares address information by common PURIPITTO. The pit a land / for this groove discernment is arranged every groove 4 in all trucks with a land.
[0015] the case where the number is the case where the number of track numbers is even, and odd when it is a time of counting the regenerative signal of PURIPITTO a land / for groove discernment of (2) and (1), and counted value being beyond a predetermined value, and below a predetermined value -- a case -- a reason -- carrying out -- a land and a groove -- identifying -- a means -- having prepared .
[0016] (3) In the predetermined field of a sector, the mark was recorded on either the land or the groove using the record approach which can form a small mark relatively compared with the approach of recording address part on a land or a groove.
[0017] The number of the marks of (4) and (3) was counted, and a means to identify a land and a groove

in the time beyond a predetermined value and of below a predetermined value was established.
[0018] When recording the mark of (5) and (3) for any of a land and a groove being, it records on all the sectors that should record a mark first, a mark is checked on predetermined detection conditions after that, a mark can be detected correctly at the side on which any of a land and a groove or a mark is recorded, and it checks that a mark is not detected in an another side side.
[0019] Moreover, by recording data at the same time it records a mark, and checking said record data at the same time it checks a mark, processing is performed to initialization and coincidence of a medium and the processing time is shortened.
[0020] In order to record the mark of (6) and (3), the FLAG generating circuit, the land, and the function that records a mark on a medium from the output of a FLAG generating circuit only in the sector of the direction which records which mark of a groove were prepared. Moreover, in order to check the recorded mark, the detection means of said mark was established.
[0021] (7) Two or more PURIPITTO was prepared in one side of the boundary of a land (groove) and the groove (land) of both sides, and two or more PURIPITTO was prepared in the boundary of another side after that. PURIPITTO a land / for this groove discernment has been arranged 4 truck periods at the time of setting every other [of a land (groove)] truck, i.e., a land and a groove.
[0022] moreover, the counter which counts the pulse of the regenerative signal of PURIPITTO a land / for this groove discernment -- preparing -- the first threshold and second threshold (the first threshold < second threshold) -- setting up -- the counted value of said counter -- below the first threshold -- more than [or / the case where it is more than the second threshold and more than the first threshold] -- and the case below the second threshold is detected and a means to identify a land and a groove is established.
[0023] (8) The first PURIPITTO which becomes one side of the boundary of a land (groove) and the groove (land) of the both sides from two or more PURIPITTO was prepared, the second PURIPITTO which consists of two or more PURIPITTO was prepared in the boundary of another side after that, and the non-signal field was further prepared between predetermined divisions among both. PURIPITTO a land / for this groove discernment has been arranged 4 truck periods at the time of setting every other [of a land (groove)] truck, i.e., a land and a groove.
[0024] Moreover, the counter which counts the pulse of the regenerative signal of the first PURIPITTO a land / for this groove discernment, and the counter which counts the pulse of the regenerative signal of the second PURIPITTO were formed, and a means to have detected the combination of that size and to identify a land and a groove based on this with a means [a predetermined value / number / of the first PURIPITTO] and a means [a predetermined value / number / of the second PURIPITTO] was established.
[0025] (9) the playback information from a medium to the sector concerned -- one of a land and the grooves -- with the means to identify A comparison means to compare this discernment result with the indicated value of the land/groove of a processing sector, It prevents that stop record or elimination when these are in agreement, the control means to which record or elimination is permitted is established and a gap generates a truck in a groove (land) from a land (groove), and the data on a medium are destroyed. Moreover, at the time of playback, the data transfer to high order equipment is stopped, and it prevents transmitting mistaken data.
[0026] (10) From the regenerative signal of the medium by which the ID section on which 1 time or a multiple-times ID number is recorded, and the mark a land / for groove discernment were recorded By could detect at least one of 1 time or the ID numbers by which multiple-times record was carried out, and having detected the mark a land / for groove discernment, a sector is specified and the control circuit which performs the playback data transfer of record, elimination, or high order equipment HE on condition that this is prepared.
[0027] The processing sequence which judges the sector to be a bad sector and carries out shift registration at the time of record of (11) and (10) or elimination when ID cannot detect one, or when identification marking cannot detect correctly was established.
[0028] (12) It recorded, after performing conversion (NRZI conversion) which reverses a signal

corresponding to "1" of an information signal, it was the edge recording method which makes the edge of a mark bear information, and when the approach of edge record was used also for the alignment pattern in false, the pattern of both forward reversal of the alignment pattern after NRZI conversion was prepared as information.
[0029] A means to record the pattern of normal rotation of the alignment pattern of (13) and (12) and reversal as an identification code of a land and a groove, a means to reproduce said alignment pattern and to identify a land and a groove, and the control means that inhibits the data transfer of high order equipment HE when the discernment result of said land and groove differs from indicated value were established.
[0030]
[Embodiment of the Invention] The example of this invention is explained to a detail using a drawing below. Although all the following examples are an optical disk or an optical disk unit, and the case where the land / groove recording method of 2 spiral methods are used is illustrated as an example and explained, this invention is not restricted to this. This invention is a record medium which narrows a track pitch and performs high density record. Record a big mark relatively [section / ID] and a small mark is recorded relatively [data division]. If it is the record medium provided so that the mark of the ID section may be arranged on the boundary of a truck, or a boundary production and a mark may not exist in the both sides of a truck at coincidence, and the record or a regenerative apparatus It can use also in the optical disk using methods a land / other than groove record except an optical disk, the optical disk of 1 spiral method, and the optical disk with which a truck is arranged concentric circular. For example, relatively, when using in common by two grooves which are the optical disks which record you ZADE-TA only on a groove, and do not record you ZADE-TA on a land, but narrow width of face of a land relatively compared with a groove, and attain densification, and contained address information and which arrange big PURIPITTO in the center of a land and adjoin, it can use for identifying two trucks (groove) which share this PURIPITTO. Moreover, when recording a big mark on the ID section relatively in a magnetic disk drive or a magnetic tape unit compared with a you ZADE-TA field, and when sharing the mark of the ID section by two adjoining trucks, it can use, for example.
[0031] That is, what is necessary is just to have an expression called a land and a groove read and changed into expressions, such as the even-numbered truck and the odd-numbered truck, in drawing of an example, or its explanation, when 1 spiral method and a truck apply the following examples to the record medium by which concentric circular arrangement is carried out. Moreover, what is necessary is just to have an expression called a land and a groove read and changed into expressions, such as the first spiral and the second spiral, in drawing of an example, or its explanation, when applying the following examples to 2 spiral methods a land / other than groove record.
[0032] Moreover, the phase change recording method which forms on a medium two kinds of conditions that a reflection factor changes with phase changes although what kind of thing may be used as a record mark of the data at the time of using an optical disk as a record medium, and the magneto-optic-recording method which detects the car angle of rotation of the reflected light may be used. Moreover, as the PURIPITTO section which records ID information, although what kind of method may be used similarly, the method which detects the difference in the reflection factor of the part which makes a mechanical hole and has a hole on a medium, and the part which is not may be used.
[0033] (Example 1) The partial flat-surface enlarged drawing of the optical recording medium of this invention is shown in drawing 1 . The land 4 and the groove 5 are arranged by turns at data division 1, and the record mark 6 is recorded on the field of the both. That is, a land 4 and a groove 5 are record sections. A slot is not formed by the ID section 2 and the FLAG section 3, but PURIPITTO 7 is arranged on the production of the boundary of said land and groove at them. This PURIPITTO 7 is arranged to the center line of a land 4 at the drawing Nakashita side in the ID section 2. Moreover, PURIPITTO 7 is arranged to the center line of a land 4 at the drawing Nakagami side in the FLAG section 3. PURIPITTO of the ID section 2 is recorded once on two trucks, as shown in drawing 1 . PURIPITTO of the FLAG section is recorded once on a land / groove 4 in all trucks, as shown in drawing 1 , and four pulses of pulse numbers of PURIPITTO are recorded, for example. In Tr number 0

land 101 and Tr number 0 groove 102, PURIPITTO of the ID section 2 records common address information, and the Tr number 0 which is the same ID number is reproduced at the time of playback. In Tr number 1 land 103, Tr number 1 groove 104 and Tr number 2 land 105, Tr number 2 groove 106 and Tr number 3 land 107, Tr number 3 groove 108 and Tr number 4 land 109, Tr number 4 groove 110, and each, a common ID number is reproduced similarly.

[0034] The regenerative signal which made the regenerative signal binary for each truck of 101-110 of drawing 1 to drawing 2 is shown. 101-110 are alike and support the playback wave of 111-120, respectively. Since the wave of the ID section of the Tr number 0 land regenerative signal 111 and the Tr number 0 groove regenerative signal 112 is reproducing common ID, it becomes the same, but since there is a pulse signal in the Tr number 0 land regenerative signal 111 to there being no pulse signal at the FLAG section 3 of the Tr number 0 groove regenerative signal 112 in the FLAG section 3, both discernment is possible. Moreover, since the wave of the ID section of the Tr number 1 land regenerative signal 113 and the Tr number 1 groove regenerative signal 114 is reproducing common ID, it becomes the same, but since there is no pulse signal in the FLAG section 3 of the Tr number 0 groove regenerative signal 114 to there being a pulse signal in the Tr number 0 land regenerative signal 113 at the FLAG section 3, both discernment is possible. Thus, the adjoining land and groove with common ID are discriminable by preparing PURIPITTO of the FLAG section in the near boundary in which PURIPITTO of ID is not prepared every lands / groove 4 in all trucks.

[0035] (Example 2) An example of a land / groove detector more suitable than an optical disk medium like drawing 1 to identify a land and a groove is shown in drawing 3 . In the example of the optical disk medium of drawing 1 , when the number of Tr numbers is even, when a pulse is in the FLAG section 3, the truck is a groove, and when there is no pulse in the FLAG section 3, the truck is a land. When the number of Tr numbers is odd, when a pulse is in the FLAG section 3, the truck is a land, and the truck is a groove when there is no pulse in the FLAG section 3. The circuit of drawing 3 performs discernment of a land and a groove using this. The circuit of drawing 3 is reset when the FLAG detection gate 12 which shows the timing of a FLAG field turns off. The counter 16 which counts the pulse of the regenerative signal 11 (binary-ized signal) of a medium when the FLAG detection gate 12 turns on, "Three" decoding circuits 17 which output a pulse when the counted value 21 of this counter 16 is set to "3", The edge-triggered flip-flop 18 which incorporates this output pulse by the opposition of a regenerative signal 11, RS flip flop 19 which is reset by the sector pulse 13 which outputs a pulse signal to a sector once, and is set with the output signal of a flip-flop 18, Regenerative signals 11 are consisted of by the ID detector 24 which detects an ID number, and the ENOR gate (Exclusive NOR gate) 20 which makes an input signal the output 23 of the Tr number least significant bit 15 and RS flip flop 19 which were detected in the ID detector 24. That is, when the number of the pulses of the FLAG section is three or more, the output 23 of a flip-flop 19 serves as "H" level, and 23 is set to "L" level two or less cases. " when the number of Tr numbers of Tr number least significant bit 15 is even -- H" level when [L / "when it is level and the number of Tr numbers is odd"] -- it is . the ENOR gate 20 -- input signals 23 and 15 -- "H"" -- H" or" -- L""L"" H" level -- outputting -- "H""L" or "L"" -- "L" level is outputted by H". The table of drawing 4 summarizes this. A land / groove detecting signal 14 shows a groove on "L" level, and shows a land on "H" level.

[0036] The timing diagram of the circuit of drawing 3 of operation is shown in drawing 5 . The timing diagram of drawing 5 expands the ID section and the FLAG section when reproducing Tr number 0 groove 102. RS flip flop 19 is reset by the pulse of the sector pulse 13 near the ID section of a regenerative signal 11, and an output signal 23 serves as "L" level by it. Tr number least significant bit 15 serves as "L" level by even number truck. The FLAG detection gate 12 is a gate signal which shows the FLAG section, and serves as "H" level in a FLAG field. If the FLAG detection gate 12 serves as "H" level, reset of a counter 16 will be canceled and a count will be started. A pulse is outputted to "3" decoding pulse 22 to the timing from which counted value 21 was set to "3." 22 is incorporated with a flip-flop, the output 23 of RS flip flop 19 is set by this output 23, and it is shown that the pulse number of FLAG of this sector is three or more pieces. By having detected three FLAG pulses shows that the land / groove detecting signal 14 which takes ENOR of 23 and 15 and is generated serve as "L" level,

and has this sector by the groove.
[0037] Like, if the circuit of drawing 3 is used, said land and groove can be easily distinguished like drawing 1 R> 1 by detecting said land, ID number of a groove, and existence of a FLAG pulse also in the optical disk medium which was described above and which shares one ID by the land and the groove.
[0038] (Example 3) One example of the optical disk medium of this invention is shown in drawing 8 .
[0039] Before explaining drawing 8 , drawing 6 and drawing 7 are used and described about the fault of the optical disk medium of drawing 1 . Drawing 6 shows an example of the setting approach of of the suitable sector and suitable truck for an optical disk medium like drawing 1 . The location of a sector boundary 24 was set as the always same angle of rotation, and it has gathered by all trucks. Another example of the setting approach of the sector of a medium is shown in drawing 7 . Drawing 7 is the example of a setting of the sector on the medium when applying a CLV (Constant Line Verocity) method to a land / groove record. The adjoining land of a lot and the angle of rotation of the boundary 25 of the sector of a groove are made the same, the PURIPITTO section is shared, and a cross talk is decreased. However, the sector of a certain truck located in a land 4, for example changes, the sector of the land after 1 rotation changes to a location, and a location shifts for a constant linear velocity. Therefore, although the angle of rotation of a sector is in agreement and the groove of adjoining one side can share PURIPITTO when its attention is paid to a certain land, the angle of rotation of the near groove of another side of a sector does not correspond, and it cannot share PURIPITTO. By Tr number 0 groove 102 of a medium like drawing 1 , since it is necessary to prepare PURIPITTO in both the inside top of drawing, and the bottom from the center line of a groove, it is inapplicable with such a setting method of a sector.
[0040] Drawing 8 is the example of an identifiable optical disk medium about a land and a groove, when the sector is set up like drawing 7 . Although a setup of a sector like drawing 7 can also be used, in order to simplify explanation, drawing 8 assumes a setup like drawing 6 for convenience, and is written. The land 4 and the groove 5 are arranged by turns at data division 1 and the FLAG section 3, and, as for the optical disk medium of drawing 8 , the record mark 6 is recorded on the data division 1 of the field of the both. That is, a land 4 and the groove 5 of data division 1 are record sections. A slot is not formed by the ID section 2 but PURIPITTO 7 is arranged on the production of the boundary of said land and groove at it. This PURIPITTO 7 is arranged to the center line of a land 4 at the drawing Nakashita side in the ID section 2. By the recording method which can form the same small mark as recording on data division 1, the predetermined record mark is recorded on the FLAG section 3. The mark of the FLAG section 3 is recorded only on a groove, and is not recorded on a land.
[0041] The wave at the time of playback of the optical disk medium of drawing 8 (after binarization) is shown in drawing 9 . Each truck of 121-130 and the playback wave of 131-140 correspond, respectively. Although the ID number of 131, 132, 133, 134, 135, 136 and 137, and 138, 139 and 140 becomes the same, respectively since PURIPITTO of the ID section 2 is shared There is a pulse in grooves 132 and 134,136,138,140 among 131-140 at the FLAG section 3. Also in the land and groove which adjoin lands 131 and 133,135,137,139 from there being no pulse at the FLAG section 3, and share PURIPITTO, both sides are discriminable. Moreover, since the mark of the FLAG section 3 is recorded using the same recording method as data division, compared with PURIPITTO, it is a small mark relatively, and it can form only on a land and the cross talk to a groove can be disregarded. Thus, by the optical disk medium of drawing 9 , that what is necessary is to prepare PURIPITTO which a land and a groove share only below the center line of the land 4 in drawing, also case [like drawing 7], it can apply.
[0042] Moreover, although the mark is recorded only on the groove of the FLAG section 3 by the medium of drawing 8 , it is good also as a configuration recorded only on a land. In such a case, since there is a mark on a land and there is no mark in a groove, discernment of a land and a groove is possible.
[0043] (Example 4) One example of suitable land / groove detector to use for the optical disk medium of drawing 8 at drawing 10 is shown. The counter which counts the pulse of the regenerative signal 31 (binary-ized signal) of a medium when it is reset when the FLAG detection gate 32 which shows the

timing of a FLAG field turns off, and the FLAG detection gate 32 turns on, "Three" decoding circuits 37 which output a pulse when the counted value 41 of this counter is set to "3", The edge-triggered flip-flop 38 which incorporates this output pulse by the opposition of a regenerative signal 31, It is reset by the sector pulse 33 which outputs a pulse signal to a sector once, and consists of inverters 40 which reverse the output signal of RS flip flops 39 and 39 set with the output signal of a flip-flop 38. That is, when the pulse number of the FLAG section is three or more pieces, "L" level is outputted to a land / groove detecting signal 34, it is shown that the sector is a groove, when the pulse number of the FLAG section is two or less pieces, "H" level is outputted to a land / groove detecting signal 34, and it is shown that the sector is a land.

[0044] (Example 5) In drawing 11 , it is one example of this invention. Drawing 11 is an example of the flow chart which shows the generation method of FLAG of drawing 8 . The mark of the FLAG section 3 of drawing 8 is a mark pattern required to identify a sector correctly, and already being recorded is desirable when a medium manufacturer ships a medium. However, since the record approaches differ, a medium manufacturer's process increases and it becomes complicated creating [of a medium] the mark of the ID section 2 and the mark of the FLAG section 3. In order to prevent such a thing, in this example, FLAG is generated at the time of initialization of a medium.

[0045] The approach of generating the mark of initialization of a medium and the FLAG section 3 is explained to coincidence using drawing 11 . At step 81, the FLAG section and data division of all sectors are eliminated first. However, step 81 may be skipped by the new medium all whose sectors are not written [the case where the equipment in which the Ore baryte is possible is used, and] in. Next, at step 82, an optical head is positioned in a groove. ID of the sector of a groove is read at step 83, and in the format on which the same ID number as the ID section is recorded twice, when either of these is in agreement, the FLAG section and data division of the sector concerned are recorded at step 84. When all two ID numbers are not in agreement, it judges with a bad sector and registers as a shift sector at step 87. When the FLAG pattern recorded by 84 is checked at step 85 and it is able to detect on predetermined detection conditions, it progresses to step 86 and the data division of the sector concerned are checked. When data are able to be reproduced below by the predetermined error rate, the sector is judged as a normal sector. Moreover, when a FLAG pattern was not detected, or data are unusual and there are by step 86 at step 85, the sector is judged to be a bad sector and carries out shift registration at step 87. In step 88, processing of 83-87 is repeated until the judgment of being a normal sector finishes about the sector of all grooves. When processing of the sector of all grooves is completed, it progresses to step 89 and is location ****** to a land about an optical head. In step 90, ID of the sector of a land is read, and when either is in agreement between two ID numbers, the data division of the sector concerned are recorded at step 91. When all two ID numbers are not in agreement, it judges with a bad sector and registers as a shift sector at step 94. When a FLAG pattern is checked at step 92 and it cannot detect on predetermined detection conditions, it progresses to step 93 and the data division of the sector concerned are checked. When data are able to be reproduced below by the predetermined error rate, the sector is judged as a normal sector. Moreover, when a FLAG pattern is incorrect-detected at step 92 or there are data by NG at step 93, the sector is judged to be a bad sector and shift registration is carried out at step 94. In step 95, processing of 90-94 is repeated until the judgment of being a normal sector finishes about the sector of all lands. If processing of the sector of all lands is completed, record of initialization and FLAG will be ended.

[0046] Although the point is sufficient as whichever, as for the sequence of processing of a land and a groove, it is more more desirable to process behind the direction which does not record FLAG for the direction which records FLAG previously. Even when FLAG has been written in the truck which a gap should produce a truck and should not have FLAG during record of FLAG, with a next check, abnormalities are extracted and it can register as a shift. Moreover, although record of FLAG and initialization of a medium are performed to coincidence in the example of drawing 11 for compaction of the processing time, record of FLAG and initialization of a medium may be performed separately. Moreover, it is not necessary to perform only record of FLAG and to perform initialization of a medium. The dependability of data improves by checking the both sides of the sector which is not recorded as the

sector which recorded FLAG, detecting the sector which wrote in the sector or FLAG which failed in the writing of FLAG as incorrect **, and carrying out shift registration at the time of record of the mark of the FLAG section 3 of a medium like [in this example] drawing 8 R> 8, as stated above, using a truck as identifiable good at the time of record of you ZADE-TA, or playback. Moreover, by performing the check of the sector which does not record FLAG after the completion of record of FLAG of the sector which records FLAG, a truck enables detection of this, also when it has written in the sector which does not record FLAG by gap. Furthermore, the time amount which medium creation takes is shortened by performing record and its check of FLAG to initialization and coincidence of a medium.

[0047] (Example 6) Drawing 12 is the optical disk record which carries out the operation flow chart of drawing 11 , or one example of a regenerative apparatus. MPU801 which drawing 12 outputs a land / groove indication signal 73, ID1 number indicated value 70, and ID2 number indicated value 71, and receives land / groove detecting-signal 34, recovery data 76, and ID2 detecting signal 72, The control timing of a sector It generates. The FLAG section Into the shown FLAG detection gate 32 and 1 sector, once a pulse signal The sector pulse 33 and record to output The controller section 802 which comes out of the signal recorded on FLAG section tie MINGUGE-TO 74 which directs the FLAG section of the sector which records the WR gate 66 which shows the data division or the FLAG section of a sector to perform, and FLAG, and data division, and outputs a certain WR data 65, The FLAG generating circuit 51 which outputs a FLAG pattern when FLAG section tie MINGUGE-TO 74 turns on, The ID detecting signal 72 this FLAG pattern on "H" level And AND gate 52 outputted when a land / groove indication signal 73 is "L" level, AND gate 54 which outputs the WR data 65 only when the ID detecting signal 72 is "H" level, OR gate 55 which takes and outputs the OR of the output of AND gates 52 and 54, AND gate 53 which outputs the WR gate 66 only when the ID detecting signal 72 is "H" level, The laser beam drive circuit 56 which directs to record a signal on a medium to a laser light source by the pulse train of said OR gate 55 when the output signal of said AND gate 53 is "H level, The laser light source 57 which records data on a medium 8 with directions of the laser beam drive circuit 56 at the time of record, and emits light in laser to playback at the time of playback, ID1 detector 59 which detects and outputs ID1 number 68 from the output of the light sensing portion 58 which receives the reflected light from a medium 8, and a light sensing portion 58, It is reset by ID2 detector 60 which detects and outputs ID2 number 69, and the sector pulse 33, detect a FLAG pattern at the period of FLAG detection gate"H" level, and a land and a groove are detected. The land / groove detector 61 which outputs a land / groove detecting signal 34 to MPU, The comparator circuit 62 which outputs ID1 detecting signal used as "H" level when coincidence of ID1 number 68 and ID1 number indicated value 70 is taken and it is in agreement, The comparator circuit 63 which outputs ID2 detecting signal used as "H" level when coincidence of ID2 number 69 and ID2 number indicated value 71 is taken and it is in agreement, Either of the outputs of 62 and 63 is equipped with OR gate 64 used as "ID detecting signal 72 which is output signal when it is H" level" H" level, and the demodulator circuit 75 which restores to a regenerative signal 31 and is outputted to MPU801, and is constituted.

[0048] As a land / a groove detector 61, the circuit of drawing 10 may be used, for example. When ID1 number 68 of number [ID2] 69 corresponds with ID2 number indicated value 71 from MPU801 in accordance with ID1 number indicated value 70 from MPU801 at the time of record, the ID detecting signal 72 serves as "H" level in next data division and the next FLAG section, AND gates 53 and 54 turn on, the WR data 65 and the WR gate 66 are sent out to the laser beam drive circuit 56, and data are recorded. When the sector which records at this time is a groove, MPU801 makes AND gate 52 turn on by making a land / groove indication signal 73 into "L" level, and also records a FLAG pattern in front of data through OR gate 55 and the laser beam drive circuit 56. When the sector which records is a land, MPU801 makes AND gate 52 turn off by making a land / groove indication signal 73 into "H" level, and does not record a FLAG pattern. Moreover, with the sector which can detect neither ID1 nor ID2, the ID detecting signal 72 serves as "L" level, and AND gates 52, 53, and 54 turn off and record neither data nor FLAG, but MPU801 recognizes this from the ID detecting signal 72, and assigns a shift sector to the sector concerned.

[0049] RAW (Read After Write) processing is performed after record and it is confirmed whether not

only data but FLAG is written in at this time. It can reproduce as the written-in FLAG pattern is the first stage, or it checks in a land / groove detector 61, and while sending out to MPU801 by making the result into a land / groove detecting signal 34, after restoring also to data in a demodulator circuit 75, it sends out to MPU801. When the mark of the FLAG section 3 is recorded only on the groove like drawing 8 at the time of RAW processing, by the groove, FLAG is not detected, or when data are unusual, a shift sector is assigned to the sector. Moreover, on a land, FLAG is detected, or when data are unusual, a shift sector is assigned to the sector. (Following and this page margin)
(Example 7) One example of a FLAG detector is shown in drawing 16 . Before explaining drawing 16 , the example of a suitable optical disk medium to use drawing 16 is explained using drawing 13 , drawing 14 , and drawing 15 .
[0050] The land 4 and the groove 5 are arranged by turns at data division 1, and, as for the optical disk medium of drawing 13 , the record mark 6 is recorded on the field of the both. That is, a land 4 and a groove 5 are record sections. A slot is not formed by the ID section 2 and the FLAG section 3, but PURIPITTO 7 is arranged on the production of the boundary of said land and groove at them. The ID section 2 consists of the ID1 section 301 and the ID2 section 302, and PURIPITTO 7 is arranged to the center line of a land 4 at a drawing Nakashita side in the ID1 section 301, and is arranged to the center line of a land 4 at the drawing Nakagami side in the ID1 section 302. The same ID number is altogether recorded on the ID1 section 301 of a land, and the ID2 section 302, respectively. The ID1 section 301 of a groove shares the land and PURIPITTO by the side of drawing Nakagami, and shares the land and PURIPITTO by the side of drawing Nakashita in the ID2 section 302. It follows, for example, an ID number which is different as it was called the Tr number 1 is read in the Tr number 0 from the ID1 section 301, and the ID2 section 302 at the time of playback of Tr number 0 groove 162. Moreover, the FLAG section 3 consists of the FLAG1 section 303 and the FLAG2 section 304, and PURIPITTO 7 is arranged to the center line of a land 4 at a drawing Nakashita side in the FLAG1 section 303, and is arranged to the center line of a land 4 at the drawing Nakagami side in the FLAG2 section 304. The FLAG section 3 is arranged to a land and a groove 4 in all truck period. Every four number of PURIPITTO of the FLAG section is formed as shown in drawing 13 .
[0051] The wave at the time of playback of the optical disk medium of drawing 13 (after binarization) is shown in drawing 14 . Each truck of 161-170 and the playback wave of 171-180 correspond, respectively. It becomes respectively the same [the ID number of 171, 172, 173, 174, 175, 176 and 177, and 178 179 and 180] in the ID1 section 301, and the ID number of 172, 173, 174, 175 and 176, and 177, 178 and 179 becomes the same in the ID2 section 302. With the regenerative signal of a land, the ID number of the ID1 section and the ID2 section serves as the same value, and by the groove, since it serves as a different value, it can identify a land and a groove. moreover, the pulse number of the FLAG section 3 -- the groove regenerative signals 172, 174, 176, 178, and 180 -- four -- it is -- the land regenerative signals 171, 175, and 179 -- 0 -- similarly in the land regenerative signals 173 and 177, it is eight. In a groove, since the pulse number of the FLAG section 3 is 0 or eight on four and a land, a land and a groove are discriminable. For example, supposing a defect 307 suits like drawing 13 on PURIPITTO of the boundary of Tr number 2 groove 166 of the ID2 section, and Tr number 3 land 167, in the playback wave of drawing 14 , the abnormalities 311 in a wave by the defect will occur. Although the ID1 section is the same as the time of playback of Tr number 2 land 175 and it cannot distinguish when there is no defect, and reproducing ID of the Tr number 2 groove regenerative signal 176, it is distinguishable from the value of ID2. However, if there are abnormalities 311 in a wave by the defect, the ID2 section 302 cannot be reproduced, but 176 and 175 can be distinguished, and there is nothing. Even in such a case, if said FLAG pattern is used, discernment of a land and a groove is possible. Thus, if an ID number can be reproduced to at least one normal when two or more ID is prepared, a truck can be specified from this ID number and a FLAG detection result. Moreover, in the example of drawing 13 , in order that the number of PURIPITTO of the FLAG1 section 303 and the FLAG2 section 304 may make drawing plain, it is set as four, but if the number of PURIPITTO of the FLAG section 3 is increased, even if the FLAG section 3 has a defect below predetermined length, detection of the FLAG section is easily possible from remaining PURIPITTO, and it can detect from remaining PURIPITTO

easily, and a pattern strong against a defect will be obtained. Although the die length of the ID section 2 and the FLAG section 3 is set as about [same] for convenience in drawing 13 , since the ID section is equipped with the VFO section which generally uses for the level luffing motion of PLL (Phase Locked Loop), and generates a playback clock, the synchronizing signal section, etc. and is constituted, it serves as a long field relatively. Even if it newly forms the FLAG section 3, the effectiveness of a sector is not spoiled greatly.

[0052] Another example of a suitable optical disk medium to use for the land / groove detector of drawing 16 is explained using drawing 15 . For example, the ID section and data division should just use the same configuration as drawing 13 . That is, the land 4 and the groove 5 are arranged by turns, the record mark 6 is recorded on the field of the both by data division 1, and a land 4 and a groove 5 are used for them as a record section. A slot is not formed by the ID section 2 and the FLAG section 3, but PURIPITTO 7 is arranged on the production of the boundary of said land and groove at them. The ID section 2 consists of the ID1 section 301 and the ID2 section 302, and PURIPITTO 7 is arranged to the center line of a land 4 at a drawing Nakashita side in the ID1 section 301, and is arranged to the center line of a land 4 at the drawing Nakagami side in the ID1 section 302. The same ID number is altogether recorded on the ID1 section 301 of a land, and the ID2 section 302, respectively. The ID1 section 301 of a groove shares the land and PURIPITTO by the side of drawing Nakagami, and shares the land and PURIPITTO by the side of drawing Nakashita in the ID2 section 302. It follows, for example, an ID number which is different as it was called the Tr number 1 is read in the Tr number 0 from the ID1 section 301, and the ID2 section 302 at the time of playback of Tr number 0 groove 182. The FLAG section 3 consists of FLAGA417 and FLAGB418, and PURIPITTO 7 is arranged to the center line of a land 4 at a drawing Nakashita side in FLAGB418, and is arranged to the center line of a land 4 at the drawing Nakagami side in FLAGA417. PURIPITTO of FLAGA417 and FLAGB418 is arranged by turns, as shown in drawing 15 . PURIPITTO of the FLAG section 3 is arranged to a land and a groove 4 in all truck period. as the number of PURIPITTO of the FLAG section being shown in drawing 15 -- FLAGA417 and FLAGB418 -- it prepares four at a time, respectively. Although the configuration methods of PURIPITTO of the FLAG section 3 differ, since the pulse number of the FLAG section 3 is 0 or eight like drawing 13 on four and a land, in drawing 15 , a land and a groove are discriminable by the groove.

[0053] One example of the land / groove detector of drawing 16 is explained. Drawing 16 is a suitable example to identify drawing 13 , or the land and groove of an optical disk medium of drawing 1515 . It is reset when the FLAG detection gate 402 which shows the timing of a FLAG field turns off. The counter 406 which counts the pulse of the regenerative signal (binary-ized signal) 401 of a medium when the FLAG detection gate 402 turns on, "Three" decoding circuits 408 which output a pulse when the counted value 413 of this counter is set to "3", The edge-triggered flip-flop 409 which incorporates this output pulse by the opposition of a regenerative signal 401, "Seven" decoding circuits 407 which output a pulse when the counted value 413 of said counter is set to "7", The edge-triggered flip-flop 410 which incorporates this output pulse by the opposition of a regenerative signal 401, It is reset by the output signal of the sector pulse 403 which outputs a pulse signal to a sector once, or a flip-flop 410. It consists of inverters 412 which reverse the output signal of RS flip flops 411 and 411 set with the output signal of a flip-flop 409. When the pulse number of the FLAG section is two or less pieces, a pulse is not outputted to 414 and 415 but it is still "L" level. Therefore, RS flip flop 411 is reset by only the sector pulse 403, and a land / groove detecting signal 404 serves as "H" level. Although a pulse signal is outputted to 414 when the pulse number of the FLAG section is three or more pieces [six or less], it is still 415"L" level. Therefore, after RS flip flop 411 is reset by the sector pulse 403, it is set in the FLAG section and a land / groove detecting signal 404 serves as "L" level. When the pulse number of the FLAG section is seven or more pieces, after a pulse signal is outputted to 414, a pulse signal is outputted to 415. Therefore, after RS flip flop 411 is reset by the sector pulse 403, it is set in the FLAG section, and it is reset further after that, and a land / groove detecting signal 404 serves as "H" level. That is, when the pulse number of the FLAG section is two or less pieces or seven pieces or more, "H" level is outputted to a land / groove detecting signal 404, it is shown that the sector is a land, when the pulse

numbers of the FLAG section are three or more pieces and six pieces or less, "L" level is outputted to a land / groove detecting signal 34, it is shown that the sector is a land, and thereby, a land and a groove can be identified.
[0054] The table of drawing 17 summarizes this. A land / groove detecting signal 404 shows a groove on "L" level, and shows a land on "H" level.
[0055] The land / groove detector of drawing 16 described above are examples, and this invention counts a pulse number in the field of the FLAG section 3, prepares and compares two thresholds to this counted value, and as long as it identifies a land and a groove, it may constitute them how. Moreover, you may switch by processing as two or more kind setup being possible also for a threshold.
[0056] (Example 8) One example of a FLAG detector is shown in drawing 19 . Before explaining drawing 19 , the example of a suitable optical disk medium to use drawing 19 is explained using drawing 18 .
[0057] The land 4 and the groove 5 are arranged by turns at data division 1, and, as for the optical disk medium of drawing 18 , the record mark 6 is recorded on the field of the both. That is, a land 4 and a groove 5 are record sections. A slot is not formed by the ID section 2 and the FLAG section 3, but PURIPITTO 7 is arranged on the production of the boundary of said land and groove at them. The ID section 2 consists of the ID1 section 301 and the ID2 section 302, and PURIPITTO 7 is arranged to the center line of a land 4 at a drawing Nakashita side in the ID1 section 301, and is arranged to the center line of a land 4 at the drawing Nakagami side in the ID1 section 302. The same ID number is altogether recorded on the ID1 section 301 of a land, and the ID2 section 302, respectively. The ID1 section 301 of a groove shares the land and PURIPITTO by the side of drawing Nakagami, and shares the land and PURIPITTO by the side of drawing Nakashita in the ID2 section 302. It follows, for example, an ID number which is different as it was called the Tr number 1 is read in the Tr number 0 from the ID1 section 301, and the ID2 section 302 at the time of playback of Tr number 0 groove 192. Moreover, the FLAG section 3 consists of the FLAG1 section 303, the FLAG2 section 304, and GAP310, and PURIPITTO 7 is arranged to the center line of a land 4 at a drawing Nakashita side in the FLAG1 section 303, and is arranged to the center line of a land 4 at the drawing Nakagami side in the FLAG2 section 304. GAP310 is a field without PURIPITTO and is prepared between the FLAG1 section and the FLAG2 section. PURIPITTO of the FLAG section 3 is arranged to a land and a groove 4 in all truck period. Every four number of PURIPITTO of the FLAG section is formed as shown in drawing 13 . Thus, when the FLAG section 3 is set up, on lands 191, 195, and 199, there is no PURIPITTO in the FLAG1 section 303 and the FLAG2 section 304, and the FLAG1 section 303 and the FLAG2 section 304 have every four PURIPITTO on lands 193 and 197. Moreover, in grooves 192 and 194,196,198,200, any of the FLAG1 section and the FLAG2 section they are does not have PURIPITTO, and there is four PURIPITTO in another side.
[0058] One example of the land / groove detector of drawing 19 is explained. Drawing 19 is a suitable example to identify the land and groove of an optical disk medium of drawing 18 . It is reset when the FLAG1 detection gate 422 which shows the timing of the FLAG1 section turns off. The counter 426 which counts the pulse of the regenerative signal (binary-ized signal) 421 of a medium when the FLAG1 detection gate 422 turns on, "Three" decoding circuits 428 which output a pulse when the counted value 435 of this counter 426 is set to "3", The edge-triggered flip-flop 430 which incorporates this output pulse by the opposition of a regenerative signal 421, It is reset when the FLAG2 detection gate 423 which shows the timing of the FLAG2 section turns off. The counter 427 which counts the pulse of the regenerative signal (binary-ized signal) 421 of a medium when the FLAG detection gate 423 turns on, "Three" decoding circuits 429 which output a pulse when the counted value 436 of this counter 427 is set to "3", The edge-triggered flip-flop 431 which incorporates this output pulse by the opposition of a regenerative signal 421, RS flip flop 432 which is reset by the sector pulse 424 which outputs a pulse signal to a sector once, and is set with the output signal of a flip-flop 430, It is reset by the sector pulse 424, and by considering RS flip flop 433 set with the output signal of a flip-flop 431, and the output signal of 432 and 433 as an input, it has the ENOR gate 442 which outputs a land / groove detecting signal 425, and is constituted. A pulse is not outputted to 437 and 438 but the pulse number of the

FLAG section is still "L" level, when FLAG1 and FLAG2 are two or less pieces. Therefore, since neither of RS flip flops 432 and 433 are reset and set by the sector pulse 424, a land / groove detecting signal 425 serves as "H" level. When the pulse number of the FLAG section is [the FLAG1 section and the FLAG2 section] three or more pieces, a pulse signal is outputted to both 437 and 438. Both the output signals of RS flip flops 432 and 433 serve as "H" level, and a land / groove detecting signal 425 serves as "H" level. Moreover, among the FLAG1 section and the FLAG2 section, when pulse number of one of the two is [the pulse number of another side] two or less pieces in three or more pieces, one of the two of the output of 432 and 433 is set to "H" level, another side serves as "L" level, and the output signal of the ENOR gate 442 serves as "L" level. Namely, when the level of a land / groove detecting signal 425 is "L", a groove is shown, and a land is shown at the time of "H".

[0059] The table of drawing 20 summarizes the function of the circuit of drawing 19 . A land / groove detecting signal 425 shows a groove on "L" level, and shows a land on "H" level.

[0060] Actuation of the circuit of drawing 19 is explained using the timing diagram of drawing 21 . The timing diagram of drawing 21 expands the ID section and the FLAG section when reproducing Tr number 1 land 193. RS flip flops 432 and 433 are reset by the pulse of the sector pulse 424 near the ID section of a regenerative signal 421, and the output signals 439 and 440 serve as "L" level by it. The FLAG1 detection gate 422 is a gate signal which shows the FLAG1 section, and serves as "H" level in the FLAG1 section. The FLAG2 detection gate 423 is a gate signal which shows the FLAG2 section, and serves as "H" level in the FLAG2 section. If the FLAG1 detection gate 422 serves as "H" level, reset of a counter 426 will be canceled and a count will be started. A pulse is outputted to the FLAG1"3" decoding pulse 437 to the timing from which the FLAG1 counted value 435 was set to "3." 437 is incorporated with a flip-flop 430 and FLAG1 detecting signal 439 is set by this output. Similarly, if the FLAG2 detection gate 423 serves as "H" level, reset of a counter 427 will be canceled and a count will be started. A pulse is outputted to the FLAG2"3" decoding pulse 438 to the timing from which the FLAG2 counted value 436 was set to "3." 438 is incorporated with a flip-flop 431 and FLAG2 detecting signal 440 is set by this output. Therefore, both FLAG1 and FLAG2 are detected, both FLAG1 detecting signal 439 and FLAG2 detecting signal 440 serve as "H" level, and a land / groove detecting signal 425 serves as "H" level, and distinguishes the sector concerned as a land. It is an example, the circuit of drawing 19 detects the pulse number of FLAG1 and FLAG2, respectively, and as long as it discriminates a land and a groove from the combination, it may constitute it how.

[0061] (Example 9) The data-logging regenerative apparatus which can be suitably used for drawing 1 , drawing 8 , drawing 13 R> 3, drawing 15 , and the optical disk medium of drawing 18 at drawing 22 is shown. MPU903 which drawing 22 outputs the land / groove indication signal 457 with which it is set as "H" level on a land, and it is set as "L" level by the groove, and receives a land / groove detecting signal 456, In the sector pulse 461 and the FLAG section which are 1 time of a pulse signal at a sector The controller section 904 which outputs the WR gate 459 used as "field recorded or eliminated in FLAG detection gate [which is a gate signal used as H" level] 462, WR data [which are record data to which the predetermined modulation was able to be applied] 458, and sector" H" level, AND gates 453 and 454 which send out the WR data 458 and the WR gate 459 to the laser beam drive circuit 56 when a land / guru-BUCHIEKKU signal 460 is "H" level, The laser beam drive circuit 56 which drives a reception laser light source for the output signal of AND gates 453 and 454, A laser light source 57 and the light sensing portion 58 which receives the return light which the laser beam emitted from the laser light source 57 reflected in the optical disk 8, it resets once into 1 sector by the sector pulse 461 -- having -- the regenerative signal 455 of the output of said light sensing portion 58 to the FLAG detection gate 462 -- "if [a FLAG pattern is detected at the period of H" level and the sector is a land]" H" level -- The land / groove detector 451 which sends out the land / groove detecting signal 456 which will serve as "L" level if it is a groove to MPU903 and the ENOR gate 452, When the detection result of a land / groove detecting signal 456 and the indicated value of a land / groove indication signal 457 are in agreement, it has the ENOR gate 452 which outputs the land / guru-BUCHIEKKU signal 460 used as "H" level, and consists of sectors concerned.

[0062] As a land / a groove detector 451, drawing 19 may be used to drawing 16 and drawing 18 R> 8 to

drawing 10 , drawing 13 , or drawing 15 to the circuit of drawing 3 , and drawing 8 , respectively to the medium of drawing 1 , for example.

[0063] When the indicated value shown in the discernment result, and the land / groove indication signal shown in a land / groove detecting signal 456 at the time of record or elimination is in agreement, it is set to "H" level, the WR data 458 and the WR gate 459 are sent to the laser beam drive circuit 56 through AND gates 453 and 454 by this, and data record or eliminate the output 460 of the ENOR gate 452. Moreover, when the indicated value shown in the discernment result, and the land / groove indication signal shown in a land / groove detecting signal 456 is not in agreement, The output 460 of the ENOR gate 452 serves as "L" level, AND gates 453 and 454 turn off by this, and the WR data 458 and the WR gate 459 are not sent to the laser beam drive circuit 56. The data is protected, when data are not recorded or eliminated but data are already recorded on the medium. Moreover, at the time of playback of the circuit of drawing 22 , after send out a regenerative signal 455 to the controller section 904 and process a recovery etc. by the controller 904, when a means to send playback data to high order equipment, and the indicated value show in the discernment result, and the land / groove indication signal show in a land / groove detecting signal 456 be in agreement, a means to suspend this data transfer may be establish. Even when making it this appearance and the sector which made the mistake in differing from directions is reproduced, it can prevent sending out mistaken data to high order equipment.

[0064] It sets, when using this circuit and it differs from location ****** of a land/groove, and directions of MPU, as stated above, there is nothing to record, elimination, or high order equipment to do for data transfer accidentally, and the data on a medium can be destroyed or it can prevent transmitting mistaken data to high order equipment.

[0065] (Example 10) The optical disk unit which can be suitably used for drawing 1 , drawing 8 , drawing 13 R> 3, drawing 15 , and the optical disk medium of drawing 18 at drawing 23 is shown. The optical disk unit of drawing 23 outputs the land / groove indication signal 497 with which it is set as "H" level on a land, and it is set as "L" level by the groove, ID1 number indicated value 480, and ID2 number indicated value 481. MPU805 which receives a land / groove detecting signal 483, In the sector pulse 494 and the FLAG section which are 1 time of a pulse signal at a sector The controller section 806 which outputs the WR gate 491 used as "field recorded in FLAG detection gate [which is a gate signal used as H" level] 493, WR data [which are record data to which the predetermined modulation was able to be applied] 490, and sector" H" level, AND gates 478 and 479 which send out the WR data 490 and the WR gate 491 to the laser beam drive circuit 56 when the WR enabling signal 489 is "H" level, The laser beam drive circuit 56 which drives a reception laser light source for the output signal of AND gates 478 and 479, A laser light source 57 and the light sensing portion 58 which receives the return light which the laser beam emitted from the laser light source 57 reflected in the optical disk 8, The regenerative signal 496 of the output of said light sensing portion 58 For example, ID1 detector 471 and ID2 detector 472 which are reproduced with the playback clock generated by PLL, and detect ID, 471 -- an output -- ID -- one -- a number -- ID -- one -- a number -- indicated value -- 480 -- in agreement -- **** -- the time -- " -- H" -- level -- becoming -- ID -- one -- a detecting signal -- 487 -- outputting -- a comparator circuit -- 474 -- 472 -- an output -- ID -- two -- a number -- ID -- two -- a number -- indicated value -- 481 -- in agreement -- **** -- the time -- " -- H" -- level -- becoming -- ID -- two -- a detecting signal -- 488 -- outputting -- a comparator circuit -- 475 -- OR gate 476 which outputs "H" level when the OR of 487 and 488 is taken and any of ID1 and ID2 they are is able to detect, it resets once into 1 sector by the sector pulse 494 -- having -- a regenerative signal 496 to the FLAG detection gate 493 -- "if [a FLAG pattern is detected at the period of H" level and the sector is a land]" H" level -- The land / groove detector 473 which sends out the land / groove detecting signal 483 which will serve as "L" level if it is a groove to MPU805 and the ENOR gate 492, The ENOR gate 492 which outputs the land / guru-BUCHIEKKU signal which serves as "H" level with the sector concerned when the detection result of a land / groove detecting signal 483 and the indicated value of a land / groove indication signal 497 are in agreement, It has said OR gate 476 and AND gate 477 which takes the AND of the output of the ENOR gate 492, and is constituted.

[0066] What is necessary is just to use drawing 3 R> 3, drawing 10 , drawing 16 , drawing 16 , and drawing 19 as a land / a groove detector 473 in the equipment of drawing 23 according to optical disk medium drawing 1 , drawing 8 , drawing 13 , drawing 15 , and drawing 18 , respectively. Moreover, by easy correction, although it is an example in case the ID number is recorded twice on the ID section with the equipment of drawing 23 , this example can be used, 1 time or also when being recorded 3 times or more. namely, -- for example, -- an ID number -- three -- a time -- recording -- having -- **** -- a case -- a regenerative signal -- 496 -- from -- three -- a ** -- ** -- an ID number -- ID -- three -- detecting -- ID -- three -- a detector -- this -- detection -- a result -- ID -- three -- a number -- indicated value -- coincidence -- taking -- a comparator circuit -- preparing -- an OR gate -- 476 -- three -- inputs -- a thing -- changing -- ID -- one -- ID -- two -- ID -- three -- any -- or -- having been detectable -- the time -- " -- H" -- level -- becoming -- you may make .

[0067] Moreover, what is necessary is to set up the same ID1 number indicated value 480 and ID2 number indicated value 481, when processing a land, and just to set a big value to ID2 number indicated value 481 by one truck to ID1 number indicated value 480 like drawing 15 and drawing 18 , when processing a groove when the ID number has shifted by one truck in the ID1 section 301 and the ID2 section 302 in the groove.

[0068] Any of ID1 and ID2 they are can detect the circuit of drawing 23 , and from FLAG, when it is able to detect as the land or the groove was directions, it records by turning on AND gates 478 and 479. in the method which makes common PURIPITTO boil and twist ID information by the land and the groove by this, it prevents recording accidentally [recognition / of a land and a groove]. Moreover, a means to send playback data to high order equipment after sending out a regenerative signal 496 to the controller section 806 and processing a recovery etc. by the controller 806 at the time of playback of the circuit of drawing 23 , When the indicated value shown in the discernment result, and the land / groove indication signal 497 which can detect neither ID1 nor ID2, or is shown in a land / groove detecting signal 483 is not in agreement, a means to suspend this data transfer may be established. Even when making it this appearance and the sector which made the mistake in differing from directions is reproduced, it can prevent sending out mistaken data to high order equipment. Moreover, that sector can be specified, if any, or one and the FLAG section can be detected among two or more ID numbers when the multiple-times ID number is recorded on the ID section by preparing ID1 and ID2 like the ID section of drawing 13 which carried out the wobble, for example, and not identifying a land and a groove by detecting these both, but ID's detecting the FLAG section independently, and this identifying a land and a groove. That is, this example is [that there should just be some in which neither a defect nor dust has adhered to any or 1 of two or more ID numbers of the ID section] strong to a defect. Moreover, what is necessary is just to increase the number of the pulses of the FLAG section, in order to make the FLAG section strong to a defect. For example, by the optical disk medium of drawing 8 of an example 3, if it is made eight although the pulse number of FLAG3 of a groove is four for example, it will become still stronger to a defect. That is, if the detection conditions of the circuit of drawing 10 are set so much as these eight pulses with four or more pieces, detection of FLAG is possible even if a pulse is missing to four with a defect. If this example is doubled with any of the medium of drawing 1 , the circuit of drawing 3 , the medium of drawing 8 and the circuit of drawing 10 , the medium of drawing 13 and the circuit of drawing 16 , the medium of drawing 15 and the circuit of drawing 16 , or the medium of drawing 18 and the circuit of drawing 19 they are and it is as stated above for example, a land / groove record, or a regenerative apparatus strong against a defect or dust will be obtained.

[0069] (Example 11) This example is drawing having shown the flow of an optical disk unit of operation. If the sector which performs processing for a head at the location **** and location ****** step 501 in step 500 into the sector which performs a light or IRE-SU processing judges a land or a groove, ID1 and ID2 of a sector will be checked at step 502 if it is a land, are detected in any of ID1 and ID2, and the FLAG section of a sector will be checked at step 503 and it will be judged with a land, a light or IRE-SU processing will be performed. When neither ID1 nor ID2 are undetectable at step 502, or when a groove is detected in step 503, a shift sector is registered in step 505. Moreover, when the sector which performs processing is a groove, if ID1 and ID2 of a sector are checked at step 506, and it

is detected in any of ID1 and ID2, and the FLAG section of a sector will be checked at step 507 and it will be judged with a groove, a light or IRE-SU processing will be performed. When neither ID1 nor ID2 are undetectable at step 506, or when a land is detected in step 507, a shift sector is registered in step 509.

[0070] As stated above, when it is judged with a bad sector by the detection result of the FLAG section which is the identification marking of not only the detection result of ID but a land/groove, the dependability of data is improved by performing shift processing.

[0071] (Example 12) One example of this invention is shown in drawing 25 . The sector format 541 which shows the configuration of a sector is constituted by the ID section 510 beforehand recorded on the medium, the data division 540 which record a user's data, and the ID section and the GAP section 537 which is a non-signal field between data divisions. In drawing 25 , the mark edge recording method which gives information to both the standup of a record mark and falling at least in data division 540 is used. Moreover, data division 540 consist of a VFO section 511 which the pulse signal of a fixed period is recorded and is used for automatic setting of the amplitude of a regenerative signal, and generation of a playback clock, SYNC512 which is the mark pattern which directs the starting position of data, and DATA513 on which you ZADE-TA to which the fixed modulation was applied is recorded. In SYNC512, it inverts in sign"1" of the SYNC pattern (before NRZI conversion) 514, and is recorded after ** (NRZI conversion). With the level of an initial state, when those with two kind and an initial state are "L" level and the SYNC pattern a515 and an initial state are "H" level, it becomes a wave like the SYNC pattern b516 at the wave which carried out NRZI conversion of the SYNC pattern (before NRZI conversion). The function which chooses as an optical disk unit any of the SYNC pattern a515 and the SYNC pattern b516 they are, and is recorded on it is prepared, and the difference in a pattern is used as information.

[0072] Thus, if an alignment pattern is made to bear information, there is no need of adding information to DATA513, and sector effectiveness can be improved. Moreover, since the reverse pattern is used for the edge of the SYNC pattern a515 and the SYNC pattern b516, although a standup and falling are set up conversely, even if the location where an edge exists is the same and uses which pattern, it has the same autocorrelation, and can be detected good. Moreover, although the irregular pattern which does not exist in data as an alignment pattern before NRZI conversion may be used, irregular nature is not spoiled even if it makes it reversed like drawing 25 in such a case.

[0073] In drawing 25 , although the example of the alignment pattern of data division was described, when recorded by the mark edge method also about the alignment pattern of the ID section, it can use as information similarly.

[0074] (Example 13) An example of an optical disk unit which used the SYNC patterns a and b of drawing 25 for drawing 26 as an identification code of a land/groove is shown. MPU807 which outputs a land / groove indication signal 538, and receives the land detecting signal 528 and the groove detecting signal 539, The sector pulse 527 which outputs a pulse signal to a sector once, the WR data 531 before NRZI conversion, and the controller section 808 which outputs the timing pulse 532 in front of VFO, AND gate 524 which turns on when a land / groove indication signal 538 is "H" level, and outputs the pulse 532 in front of VFO, The output signal of 524, and OR gate 525 which takes the OR of the WR data 531 before NRZI conversion (VFO, SYNC, DATA ****), The NRZI conversion circuit 526 which is reset by the sector pulse 527, is reversed for every pulse of the output signal of OR gate 525, and carries out NRZI conversion, The laser beam drive circuit 56 which drives a laser light source 57 with the output signal of the record data 533, A laser light source 57 and the light sensing portion 58 which detects the return light which the laser beam which emits light from a laser light source 57 reflected in the optical disk 8, The demodulator circuit 521 which restores to the regenerative signal 536 of the output signal of a light sensing portion 58, The SYNC pattern a detector 517 which takes and detects coincidence with a regenerative signal and the SYNC pattern a515, and outputs a detection pulse, The SYNC pattern b detector 518 which takes and detects coincidence with a regenerative signal and the SYNC pattern b516, and outputs a detection pulse, RS flip flop 522 which is reset by the sector pulse 527, is set by the SYNC pattern a detecting signal 534, and outputs the land detecting signal 528, RS flip

flop 523 which is reset by the sector pulse 527, is set by the SYNC pattern b detecting signal 535, and outputs the groove detecting signal 539, The selector 519 which the SYNC pattern a detecting signal 534 is chosen when a land / groove indication signal 538 is "H" level, the SYNC pattern b detecting signal 535 is chosen at the time of "L" level, and is outputted, It has the timing counter 520 which generates the timing signal which is reset with the output of this selector 519 and controls the timing of a recovery of a demodulator circuit 521 on the basis of this, and is constituted.

[0075] At the time of record of a groove, a land / groove indication signal 538 is "L" level, and the pulse signal 532 of the timing in front of VFO is not outputted from AND gate 524. Only the WR data 531 before NRZI conversion (VFO, SYNC, DATA ****) are outputted to the output of OR gate 525. Therefore, as an output of an NRZI conversion circuit, in the SYNC section, the SYNC pattern b516 is outputted and it records on a medium.

[0076] At the time of record of a land, a land / groove indication signal 538 is "H" level, and the pulse signal 532 of the timing in front of VFO is outputted from AND gate 524. The pulse signal 532 of the WR data 531 before NRZI conversion (VFO, SYNC, DATA ****) and the timing in front of VFO is outputted to the output of OR gate 525. Therefore, as an output of an NRZI conversion circuit, it is reversed to the time of record of a groove, the SYNC pattern a515 is outputted in the SYNC section, and it records on a medium.

[0077] The SYNC pattern b516 of the SYNC section recorded as having stated above at the time of playback of a groove is detected in the SYNC pattern b detector 518. It reports having set RS flip flop 523 and having detected the groove by making the groove detecting signal 539 into "H" level by this detection pulse, to MPU807. On the other hand, a land / groove indication signal 538 is set as "L" level, the pulse of the SYNC pattern b detecting signal 535 is chosen in a selector 519, and this starts a timing counter 520. Since the pulse of the SYNC pattern a detecting signal 534 is not outputted to a location ****** case from a selector 519 and a timing counter is not started by the land accidentally [**** / the case where the SYNC pattern a is incorrect-detected, and / of a head / location], it can prevent transmitting mistaken data to high order equipment.

[0078] At the time of playback of a land, the SYNC pattern a515 of the SYNC section recorded as mentioned above is detected in the SYNC pattern a detector 517. It reports having set RS flip flop 522 and having detected the land by making the land detecting signal 528 into "H" level by this detection pulse, to MPU807. On the other hand, a land / groove indication signal 538 is set as "H" level, the pulse of the SYNC pattern a detecting signal 534 is chosen in a selector 519, and this starts a timing counter 520. Since the pulse of the SYNC pattern b detecting signal 535 is not outputted to a location ****** case from a selector 519 and a timing counter is not started by the groove accidentally [**** / the case where the SYNC pattern b is incorrect-detected, and / of a head / location], it can prevent transmitting mistaken data to high order equipment.

[0079] It can prevent transmitting data for mistaken data to high order equipment, without already adding new information to a location ****** case accidentally [groove / a land and] using a certain SYNC section 512 by recording the normal rotation pattern (for example, SYNC pattern a515) and reverse pattern (for example, SYNC pattern b516) of a SYNC pattern on data division as identification information of a land and a groove, as stated above. Moreover, SYNC512 is the alignment pattern of data division 540, even if the ID number of the ID section 510 is undetectable, or even if it cannot detect this when the FLAG section described several times until now although not prepared in drawing 25 is prepared, discernment of a land and a groove is possible for it, and if the pattern of the easy redundancy of detection is used as SYNC512, it can prevent identifying [of a land and a groove] becoming impossible.

[0080] Moreover, although the SYNC pattern of data division was used as an identification code of a land and a groove in this invention, the identification code of a land and a groove may be recorded on DATA513. If the error correcting code to you ZADE-TA and this identification code is doubled and recorded, this identification code will not be un-detecting. The dependability of the data transmitted to high order equipment can be improved by establishing a means to take this identification code and the indicated value over a processing sector, and to detect coincidence, the memory which stores data

temporarily, and a means to suspend the data transfer of the sector concerned to high order equipment when not in agreement with said indicated value.

[0081] Moreover, if the ID number is recorded together with this identification code, dependability can be improved further.

[0082] Among the examples described above, although the circuitry which all counts the pulse number of the FLAG section, prepares one or more thresholds, compares counted value with a threshold, and detects FLAG was described as an example, these invention is not limited to this in drawing 3 , drawing 10 , drawing 1616 , and the land / groove detector of drawing 19 . For example, a means to detect the width of face of the pulse of the FLAG section may be established, when it is the width of face of the predetermined range, the number of the pulses which became effective as effective may be counted, and a land and a groove may be identified by comparing with said threshold. Moreover, spacing of the pulse of the FLAG section and a pulse may be measured, when it is spacing of the predetermined range, the number of the pulses which became effective as effective may be counted, and a land and a groove may be identified by comparing with said threshold. You may detect whether furthermore, without using the usual counter, the method of a count also incorporates a FLAG pattern to a shift register using the clock of a period shorter than the pulse width of FLAG, and has a pulse number more than said threshold using the technique of pattern detection. When this shift register is used, with reference to the contents of the pattern incorporated to the shift register, pulse width of FLAG and detection of a pulse period may be performed, and the function judge that is effective at the time of the predetermined range may be doubled and prepared.

[0083] Which approach described above may be used for this invention. In short, the pulse number of the FLAG section is detected, one or more thresholds are set up, and as long as it compares size and identifies a land and a groove, what kind of approach may be used. That value is switched by processing, and this threshold is also good also as a setup being possible, and may set up the threshold which judges detection of FLAG, and the threshold which judges un-detecting [of FLAG] as another value.

[0084] They are only the detection result of FLAG, discernment of a land and a groove is possible for them, namely, even if drawing 8 , drawing 13 , drawing 15 , and the FLAG section of drawing 18 cannot detect the ID section, discernment of a land and a groove is possible for them. Therefore, the ID section may be constituted how, as long as the ID number is recorded once [at least]. Although drawing 8 of this invention, drawing 13 , drawing 15 , and the ****** land for the FLAG sections and groove of drawing 18 can be identified when following, not preparing PURIPITTO of ID in the boundary of a land and a groove but preparing in the center of a land or a groove, these invention can be especially used for the boundary of a truck suitably to ID which prepares PURIPITTO like the ID section of drawing 1 , or the ID section of drawing 13 .

[0085]

[Effect of the Invention] In the record medium which shares address information in two trucks which according to this invention record address information using a big record mark relatively [boundary / of a truck], and adjoin as explained to the detail above or [preparing beforehand the FLAG section and alignment pattern for identifying said two trucks which adjoin and share address information on a medium] -- or By recording at the time of record, when it makes it possible to identify said two adjoining trucks and location **** of a head is mistaken, it prevents destroying you ZADE-TA. Moreover, by using a pattern with high redundancy for the pattern of said FLAG section, and using combining the information on the ID section, even if there are a defect and dust, the truck can be specified easily.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing showing the medium of the 1st example for carrying out the track identity method of this invention.
[Drawing 2] It is the wave form chart showing the playback wave of the medium of the 1st example of this invention.
[Drawing 3] It is the block diagram showing the configuration of the 2nd example for carrying out the track identity method of this invention.
[Drawing 4] It is the table showing the function of the 2nd example of this invention.
[Drawing 5] It is the wave form chart showing actuation of the 2nd example of this invention.
[Drawing 6] It is drawing showing an example of an optical disk which can use this invention suitably.
[Drawing 7] It is drawing showing another example of the suitable optical disk which can be used for this invention.
[Drawing 8] It is drawing showing the medium of the 3rd example for carrying out the track identity method of this invention.
[Drawing 9] It is the wave form chart showing the playback wave of the medium of the 3rd example of this invention.
[Drawing 10] It is the block diagram showing the configuration of the 4th example for carrying out the track identity method of this invention.
[Drawing 11] It is the operation flow chart which shows the art of the 5th example of this invention.
[Drawing 12] It is the block diagram showing the configuration of the 6th example of this invention.
[Drawing 13] It is an example of the optical disk which can be used suitable for the 7th example of this invention.
[Drawing 14] It is drawing showing the playback wave of the optical disk of drawing 13 .
[Drawing 15] It is an example of the optical disk which can be used suitable for the 7th example of this invention.
[Drawing 16] It is the block diagram showing the configuration of the 7th example for carrying out the track identity method of this invention.
[Drawing 17] It is the table showing the function of the 7th example of this invention.
[Drawing 18] It is an example of the optical disk which can be used suitable for the 8th example of this invention.
[Drawing 19] It is the block diagram showing the configuration of the 8th example for carrying out the track identity method of this invention.
[Drawing 20] It is the table showing the function of the 8th example of this invention.
[Drawing 21] It is the wave form chart showing actuation of the 8th example of this invention.
[Drawing 22] It is the block diagram showing the configuration of the 9th example of this invention.
[Drawing 23] It is the block diagram showing the configuration of the 10th example of this invention.
[Drawing 24] It is the operation flow chart which shows the art of the 11th example of this invention.
[Drawing 25] It is the wave form chart showing the alignment pattern of the 12th example of this

invention.
[Drawing 26] It is the block diagram showing the configuration of the 13th example of this invention.
[Description of Notations]
1: Data division The 2:ID section The 3:FLAG section 4 : [Land,] 5: Groove 6: Record mark 7: PURIPITTO 8 : [Optical disk,] 11: Regenerative signal 12:FLAG detection gate 13 : [Sector pulse,] 14: A land / groove detecting signal 15:TR number least significant bit, 16: Counter A 17:"3" decoding circuit, 18 : [Edge-triggered flip-flop,] 19: An RS flip flop, the 20:ENOR gate 24 : [Sector boundary,] 31: A regenerative signal, 56:laser beam drive circuit 57: Laser light source 58: A light sensing portion, the 301:ID1 section The 302:ID2 section The 303:FLAG1 section, the 304:FLAG2 section.

[Translation done.]

* NOTICES *

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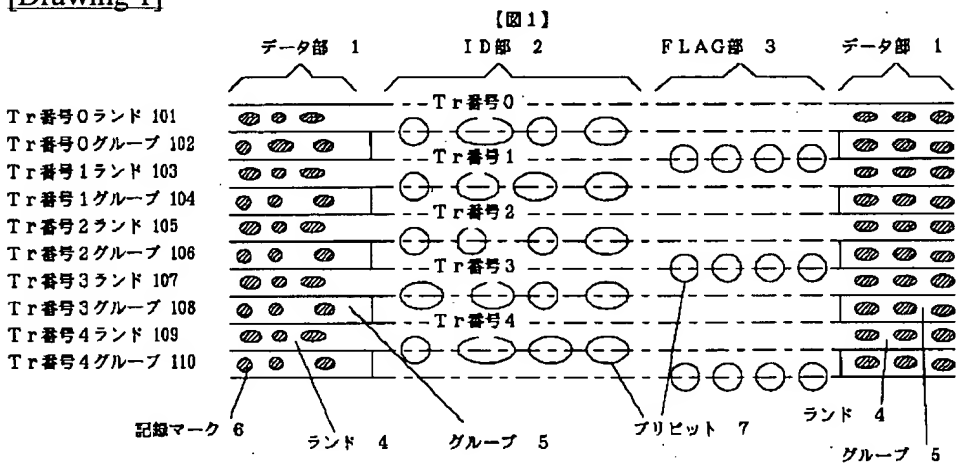
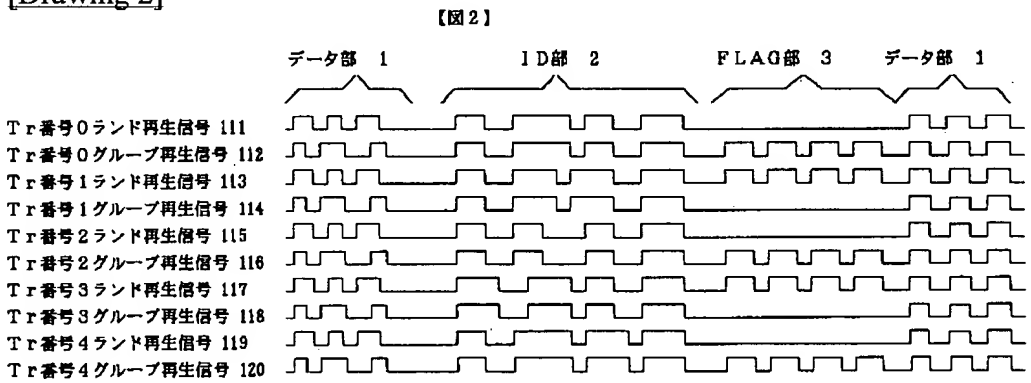
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]

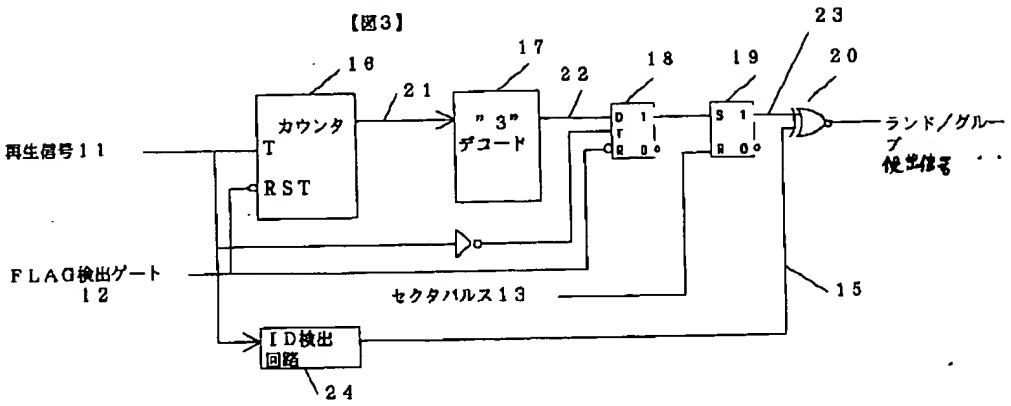


[Drawing 2]



[Drawing 3]

【図3】



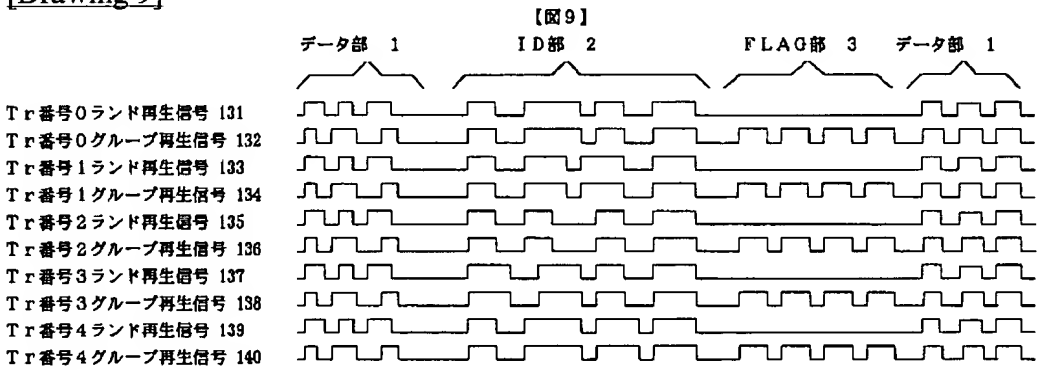
[Drawing 4]

【図4】

条件		ランド/グループ判別結果	
TR番号	FLAGパルス	ランド/グループ検出信号 14	ランド/グループ
偶数	3個以上	Lレベル	グループ
	2個以下	Hレベル	ランド
奇数	3個以上	Hレベル	ランド
	2個以下	Lレベル	グループ

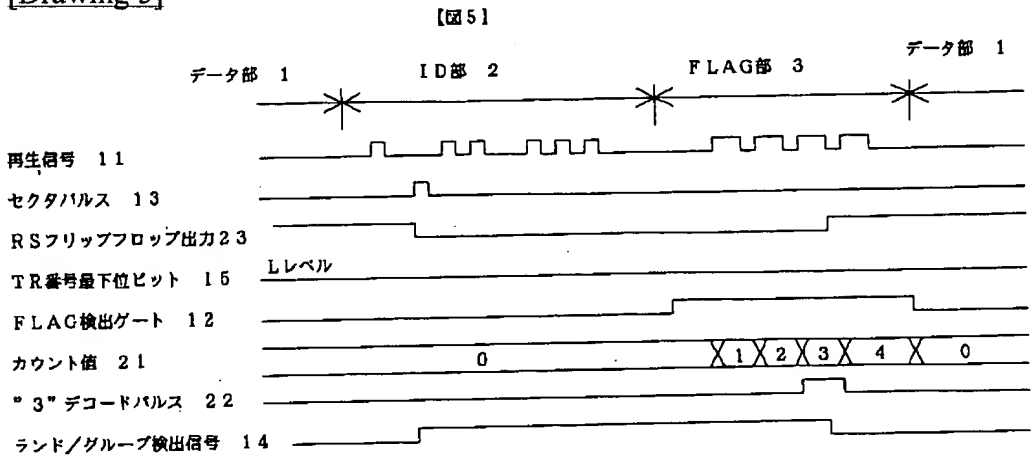
[Drawing 9]

【図9】



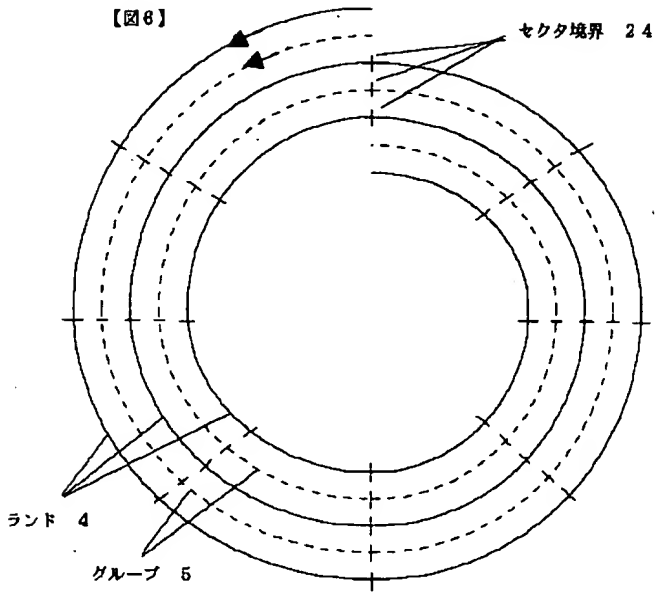
[Drawing 5]

【図5】



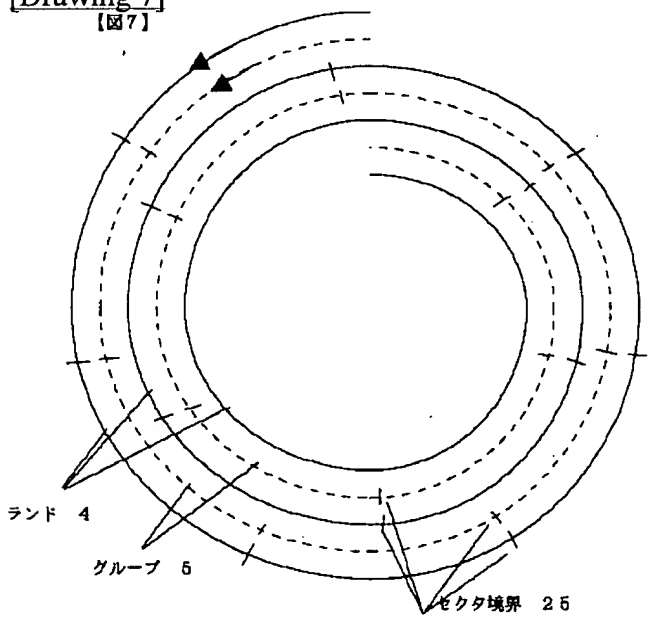
[Drawing 6]

【図6】



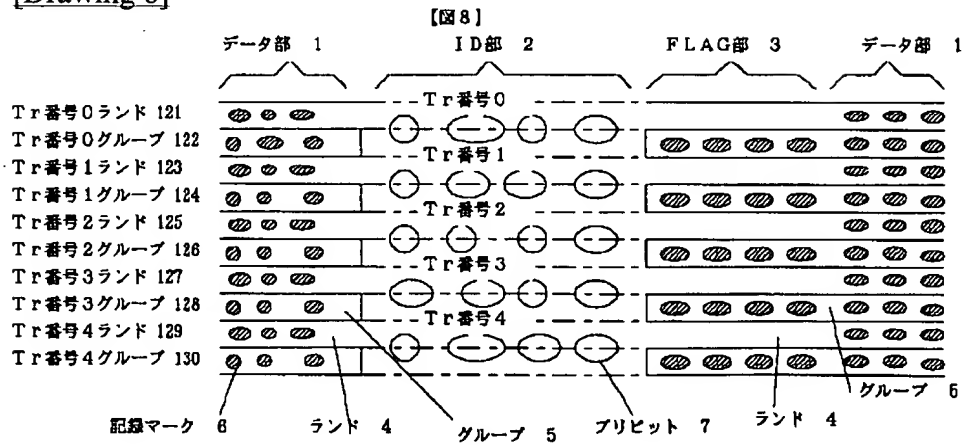
[Drawing 7]

【図7】

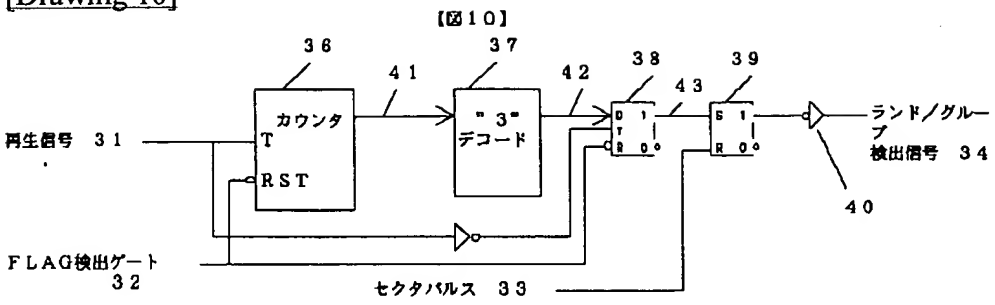


[Drawing 8]

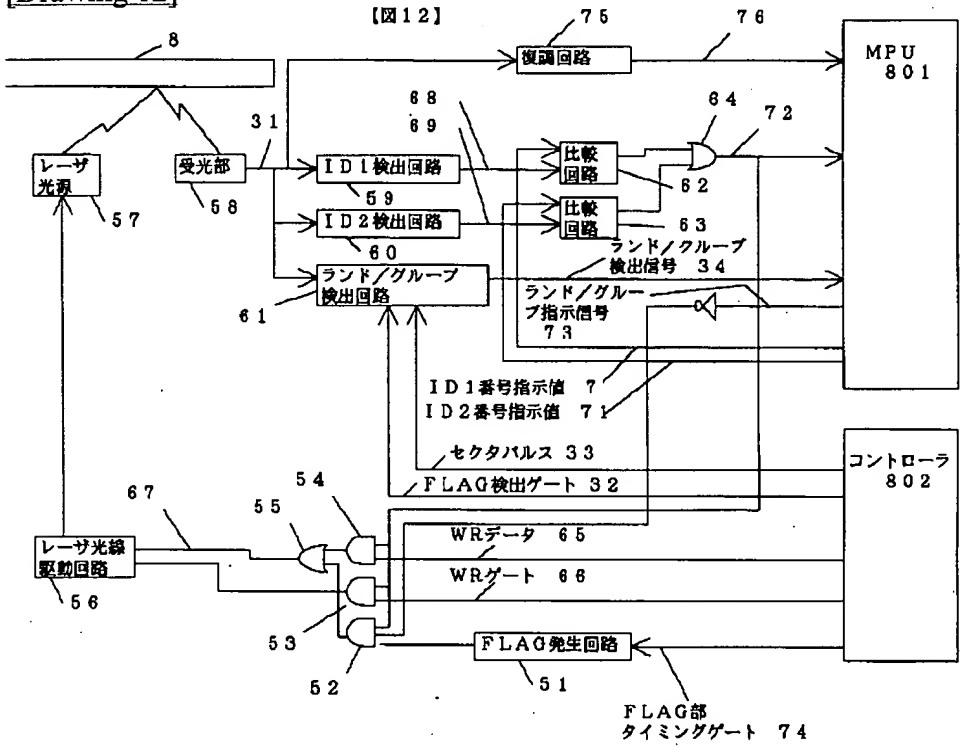
【図8】



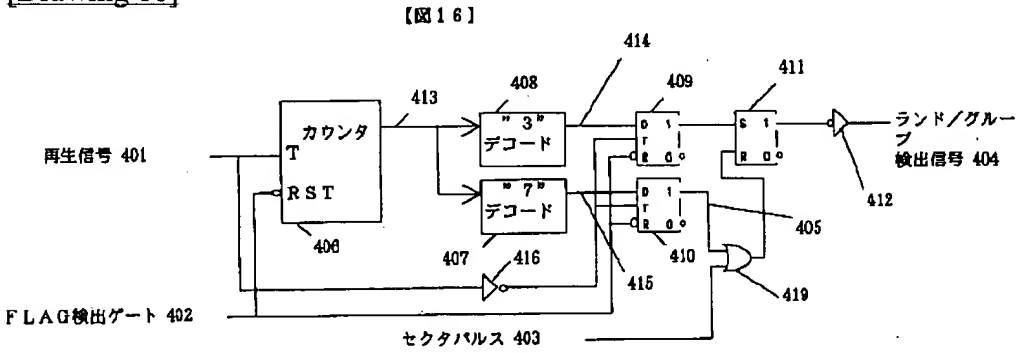
[Drawing 10]



[Drawing 12]

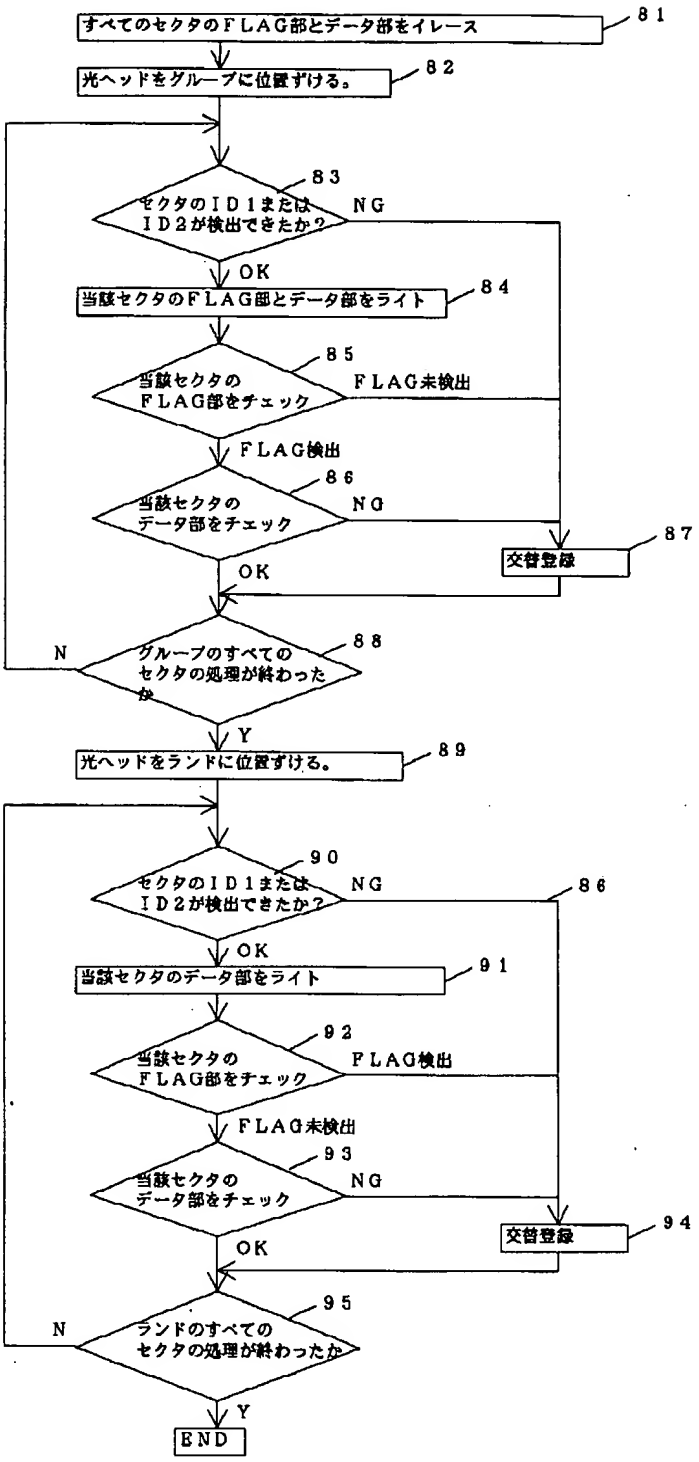


[Drawing 16]



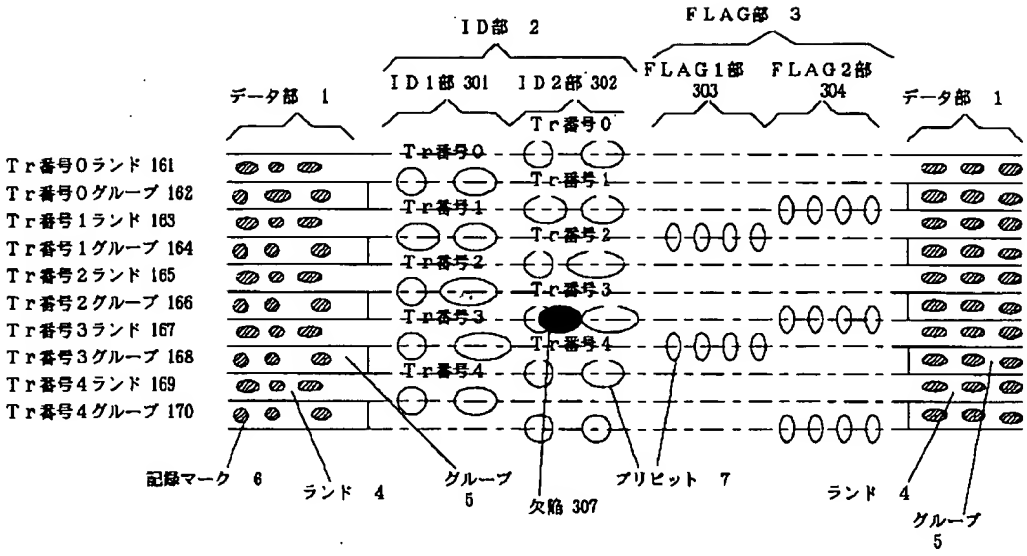
[Drawing 11]

【図11】



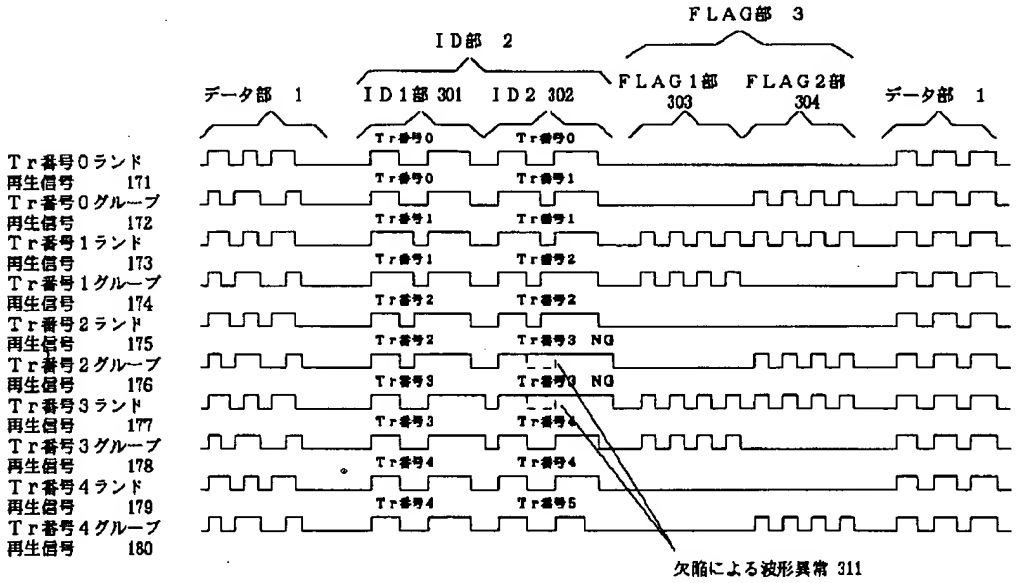
[Drawing 13]

【図１３】



[Drawing 14]

【図１４】



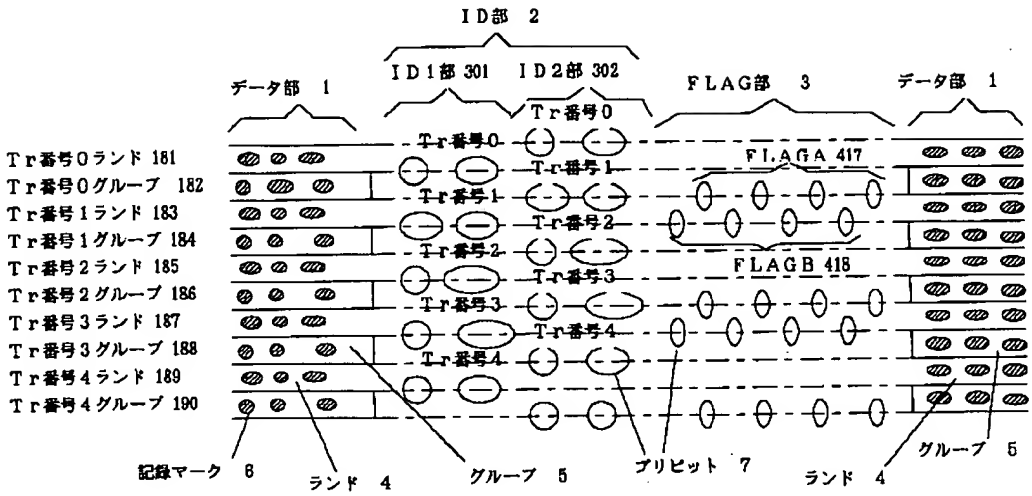
[Drawing 17]

【図１７】

条件	ランド／グループ判別結果	
ＦＬＡＧパルス	ランド／グループ検出信号 404	ランド／グループ
2個以下	Hレベル	ランド
3個以上6個以下	Lレベル	グループ
7個以上	Hレベル	ランド

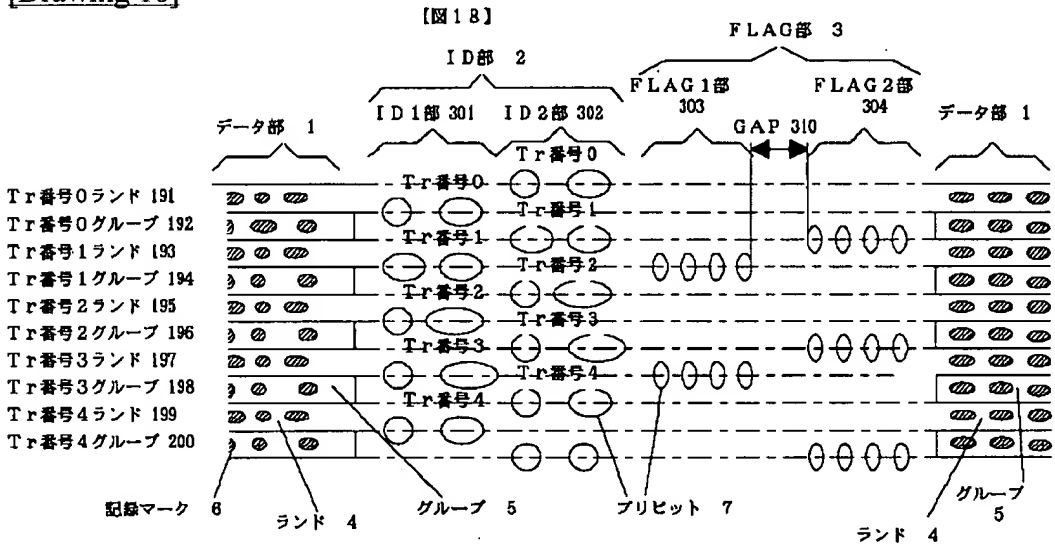
[Drawing 15]

【図１５】



[Drawing 18]

【図１８】



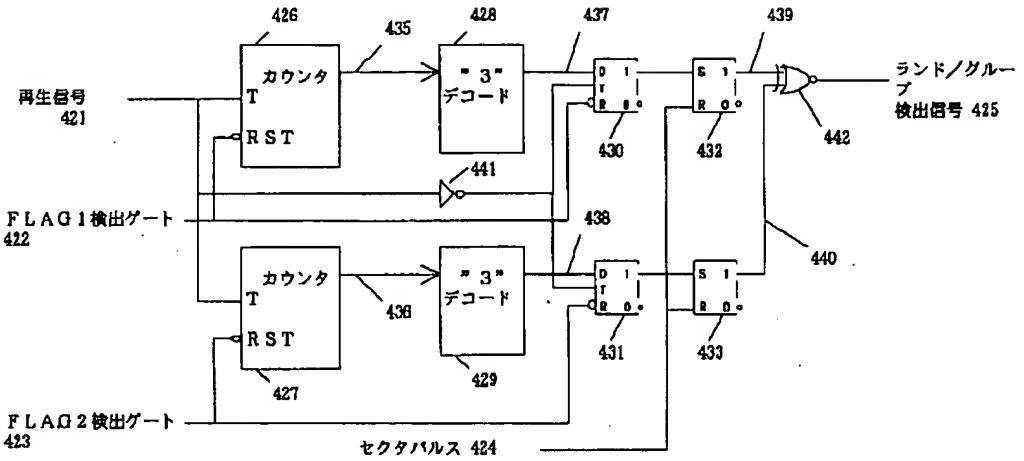
[Drawing 20]

【図２０】

条件		ランド／グループ判別結果	
ＦＬＡＧ１パルス	ＦＬＡＧ２パル	ランド／グループ検出信号 425	ランド／グループ
３個以上	３個以上	Ｈレベル	ランド
	２個以下	Ｌレベル	グループ
２個以下	３個以上	Ｌレベル	グループ
	２個以下	Ｈレベル	ランド

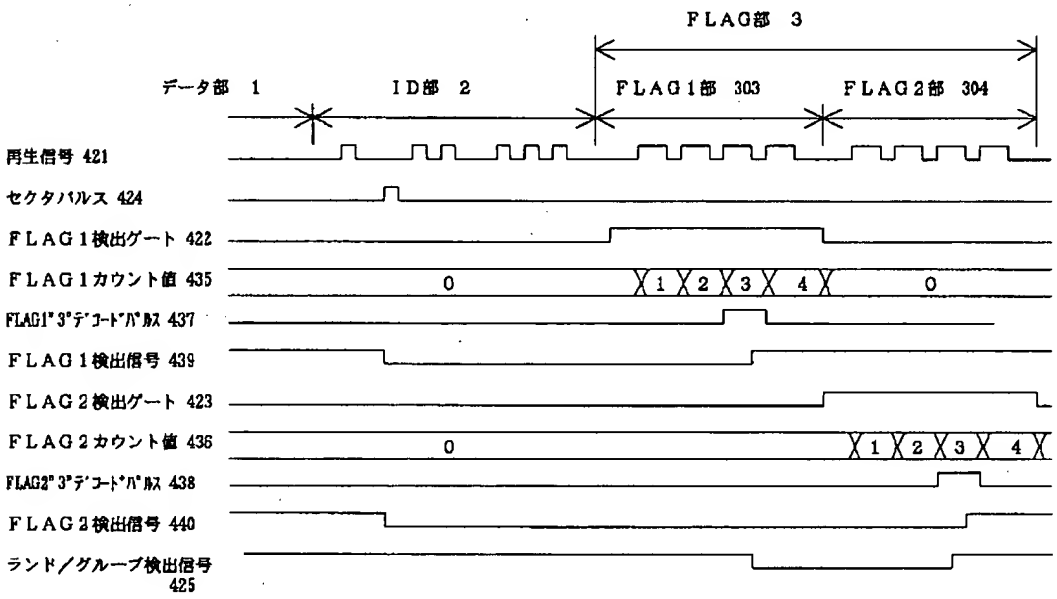
[Drawing 19]

【図１９】



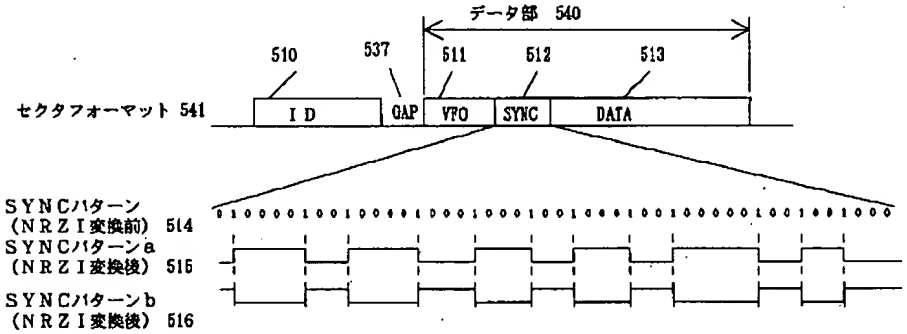
[Drawing 21]

【図２１】



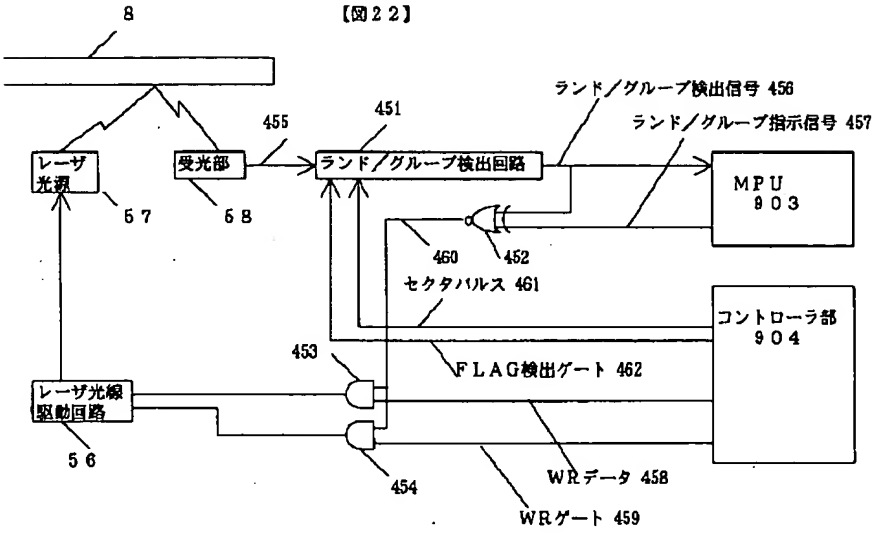
[Drawing 25]

【図２５】



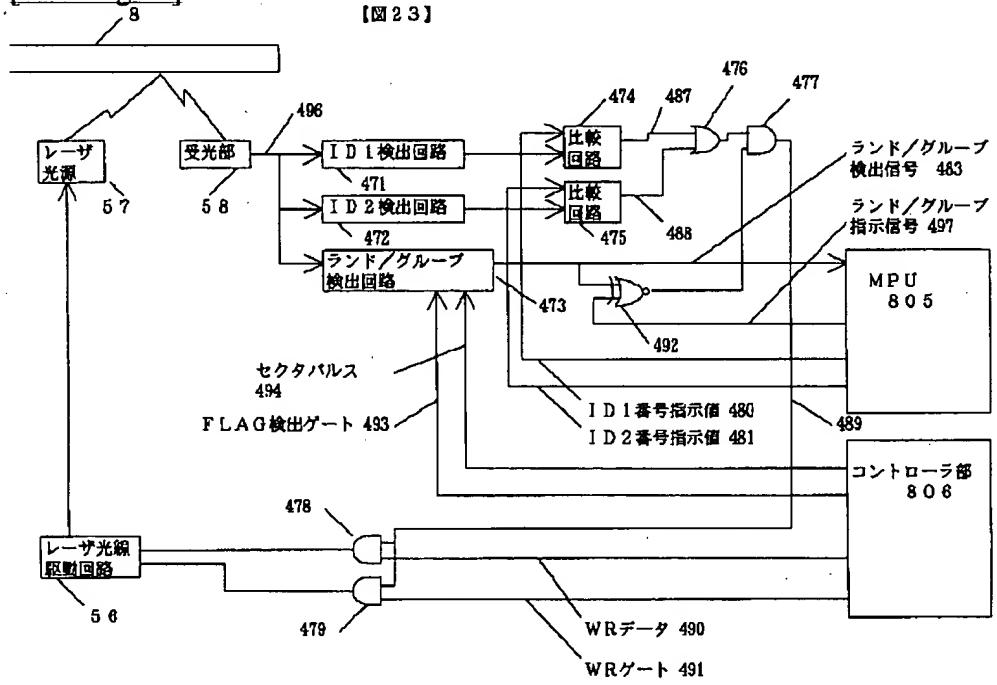
[Drawing 22]

【図２２】



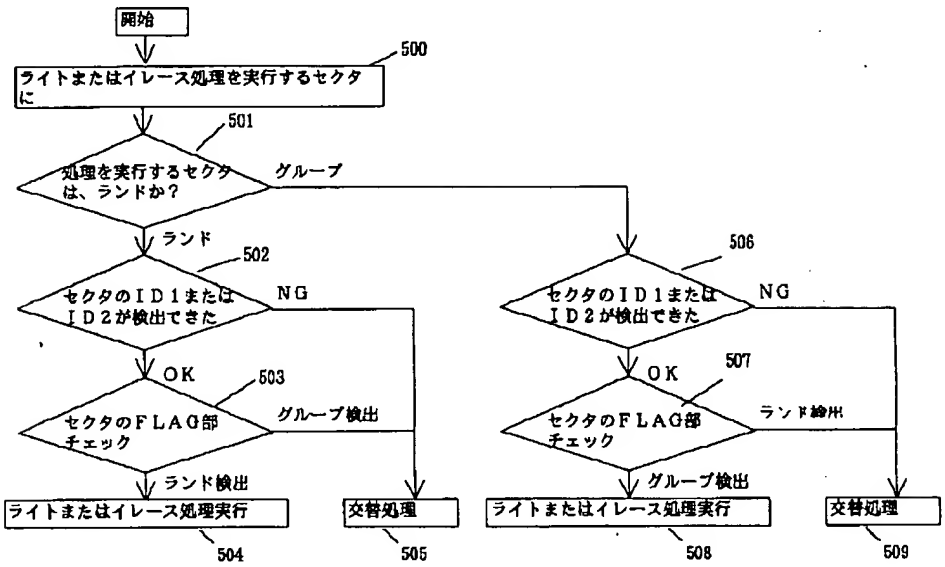
[Drawing 23]

【図２３】



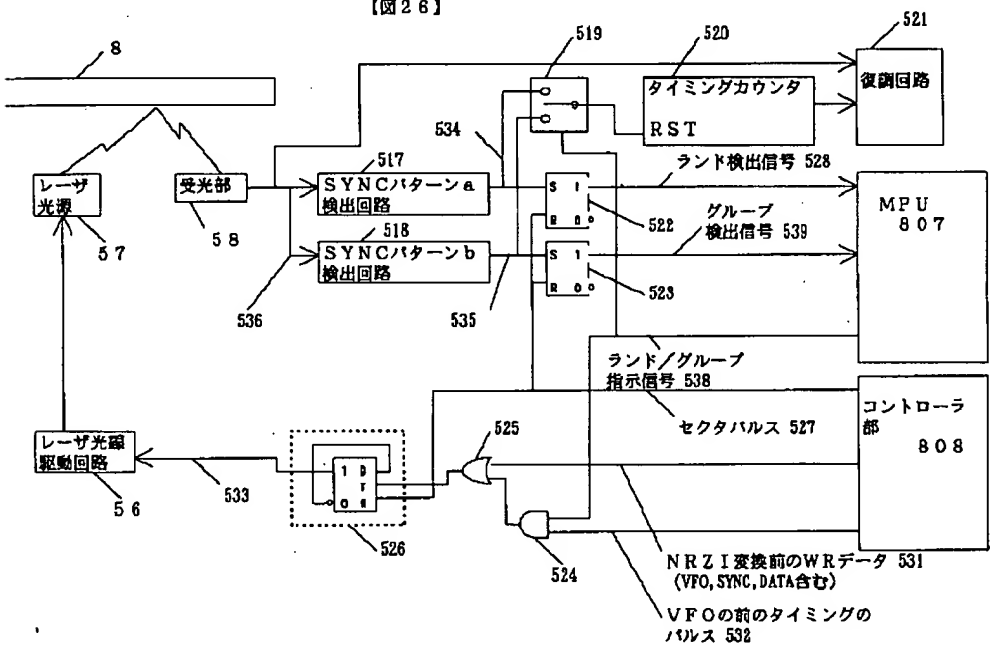
[Drawing 24]

【図２４】



[Drawing 26]

【図２６】



[Translation done.]